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THESIS

ADAPTIVE LEADERSHIP:
FIGHTING COMPLEXITY WITH COMPLEXITY

by

Peter Smith

June 2014

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13. ABSTRACT (maximum 200 words)

Contemporary crises have become increasingly complex and the methods of leading through them have failed to keep pace. If it is assumed that leadership matters—that it has a legitimate effect on the outcome of a crisis, then leaders have a duty to respond to that adaptation with modifications of their own.

Using literature sources, the research explores crisis complexity, crisis leadership, and alternative leadership strategies. Specifically, the research evaluates the applicability of complexity science to current crises. Having identified the manner in which crises have changed, it focuses on the gap between contemporary crises and the current methods of crisis leadership. The paper pursues adaptive methods of leading in complex crises and examines a number of alternative strategies for addressing the gap. The research suggests that a combination of recognizing the complexity of contemporary crises, applying resourceful solutions, and continually reflecting on opportunities to innovate, may be an effective way to lead through complex crises using complex leadership.

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ADAPTIVE LEADERSHIP: FIGHTING COMPLEXITY WITH COMPLEXITY

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I.   INTRODUCTION

> People are very open-minded about new things—as long as they're exactly
> like the old ones.
>
> —Charles Kettering

Mature landscape in sprawling city parks, pristine streets and a myriad of family friendly programs are just a few of the features that make the City of Highlake so attractive. At third largest in the state, it is a bedroom community that boasts a population of 200,000, yet manages to enjoy a surprisingly low crime rate. Highlake serves residents with a higher than average socioeconomic status, it has a popular entertainment district, and is home to over 40 schools. It is a booming city, but well planned and has become a model for many rapidly growing municipalities.

Highlake plays host to an annual high school basketball tournament. The tournament, a boon to the local economy, is a weeklong event that draws teams, fans, and talent scouts from across the country. Three days before thousands of visitors are scheduled to descend on the city, railroad officials report damage to a tank car containing pesticide to the Highlake Police Department. Within minutes of the report, a white supremacist group known as the Sovereign Knights post an online video taking credit for the theft of 200 gallons of the pathogen. In the video, they are heard chanting, "The cleansing has begun." A man in a faceless white mask claims to have contaminated the water supply of four unnamed schools and two unnamed restaurants in Highlake. The hate group calls for viewers to show their support by uploading the location and photos of minorities who dared to walk the streets of Highlake. The masked man closed with the assertion, "Any non-believers that aid the enemy will endure the wrath of the Divine's messengers."

While watching the video for the first time, Chief Jacobson, a highly decorated, 24-year law enforcement veteran becomes inundated with calls from officials from state and federal agencies, the railroad, the fire department, the city's emergency manager, the mayor's office, the chamber of commerce, public works, the tournament director, and

numerous media outlets. Chief Jacobson grabs his police radio and marches toward the Emergency Operations Center. Upon arrival, he confidently initiates the Incident Command System (ICS) by broadcasting, "I Have Command!" Seconds later, he begins to calculate the knowledge base needed to overcome the crisis and becomes very uneasy.

A. RESEARCH QUESTIONS

- **What Is the Nature of Contemporary Crises?**

In 1920, a bombing on Wall Street killed 38 people and caused $2 million worth of damage.[1] In November 1955, a sabotaged piece of luggage caused United Airlines flight 629 to explode over Longmont, Colorado that killed all 39 passengers and five crew members.[2] On September 11, 2001, 19 men from four different countries coordinated the takeover of four aircraft with simple box cutters to use the airplanes as missiles to attack the United States. The immediate result was 2,996 deaths.

Are all crises created equal? Does the modern world present combinations of crisis opportunities that history has not, or could not, conceive?

- **How Can Leaders Adapt to It?**

If it is assumed that leadership matters—that it has a legitimate effect on the outcome of a crisis, then what are leaders doing to accommodate today's crises? If crises have, in fact, become more complex, have this nation's leaders responded to that adaptation with modifications of their own? If the game has changed, it is necessary to revisit the playbook.

B. PROBLEM SPACE

Much has been written about leadership. Even within the limits of *leadership in crisis*, a considerable body of literature is available. However, the author's experience and research has led him to believe that a gap exists between the current methods of crisis

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[1] *Wikipedia*, s.v., "Wall Street Bombing," last modified April 29, 2014, http://en.wikipedia.org/wiki/Wall_Street_bombing; Beverly Gage, *The Day Wall Street Exploded: A Story of America in its First Age of Terror* (Oxford, UK: Oxford University Press, 2008), 1.

[2] Andrew J. Field, *Mainliner Denver: The Bombing of Flight 629* (Boulder, CO: Big Earth Publishing, 2005).

leadership and the nature of contemporary crises. The adage, "generals always fight the last war, especially if they have won it" comes to mind. It is the author's suspicion that homeland security "generals" are still fighting the last war. This research is important as it considers the complexion of the next war and what leaders should be doing about it.

The author's hypothesis is that crises have changed over time. If true, it is possible that leaders responsible for dealing with current crises are playing by an obsolete set of rules. He has researched the nature of the modern day crisis to see if, in fact, the challenges that demand the attention of homeland security leaders today are different than those of previous centuries or even decades.

He has also researched current methods of leading in crises. It appears a gap exists between the nature and complexity of the contemporary crisis and contemporary methods of leading. If crises have not changed, then it is not necessary to change the methods of leading to any significant degree. If, however, crises have changed, it is necessary to identify an appropriate means of bridging that gap.

In his book, *The Politics of Crisis Management*, Arjen Boin points to that gap when he writes:

> Crises have the nasty habit of rendering plans and structures irrelevant. When uncertainty leads to bewilderment, both on the ground and in the crisis center, the crisis response does not resemble a neatly delineated process of operational and strategic decision making. Situational imperatives require intense cooperation and improvisation, especially in highly volatile conditions where there is non-negotiable time pressure. Such conditions are relatively rare at the strategic level of government.[3]

Boin recognizes that "plans" (current prescriptions for leading through crises) sometimes do not meet the needs of the modern crisis. He suggests that "intense cooperation and improvisation" are the tools needed in such cases. The author suggests that leaders are not adequately preparing to use these tools.

The thesis and research questions are based on the assumption that leadership matters. It assumes that the decisions made at the top of an organization are crucial to the

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[3] Arjen Boin, *The Politics of Crisis Management: Public Leadership Under Pressure* (Cambridge, UK: Cambridge University Press, 2005), 55.

outcome of the response. If true, this research will be useful for taking the proverbial temperature of leadership in crisis and providing some remedies if it is, indeed, unwell. The author is hopeful that a review of the literature will reveal the state of crisis leadership, the nature of contemporary crises, and more suitable methods of leading through those crises.

C. LITERATURE REVIEW

1. Leadership

As articulated above, the purpose of the literature review is to examine current methods of crisis leadership in light of the nature of contemporary crises. Ideally, the literature will make it possible to make the comparison between the two, and where a gap exists, identify alternative approaches to leading through crises.

With hundreds, or even thousands, of definitions of leadership available, it is difficult to produce a succinct, yet comprehensive definition of leadership. In 1974, Ralph Stodgill noted, "There are almost as many different definitions of leadership as there are persons who have attempted to define the concept."[4] Leadership involves institutional, social, and personal influence. It can mobilize people and is able to arouse and engage followers. It can lift their vision and provide purpose, direction, and motivation. Leadership is able to point followers to a common goal and give them a unified purpose. Leadership may involve the coordination of groups so they can accomplish things greater than could be accomplished individually. Leaders may shape organizations, enact change, implement strategies, and achieve objectives. They have the opportunity to influence the culture of an entire organization or an individual's identity.

Knowing that leadership has the ability to "influence, shape, change, lift, direct, motivate," what are this nation's leaders doing during today's crises? The literature indicates that Americans, as Westerners, tend to think very linearly in these circumstances. Americans are task oriented, adept at creating and completing checklists. Leslie Prince writes, "Although in the west we recognize the distinction, priority is still

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[4] Ralph Melvin Stodgill, *Handbook of Leadership: A Survey of Theory and Research* (New York, NY: Free Press; London, UK: Collier Macmillan, 1974).

given to task and instrumental values. As a consequence our primary models still present leadership as the heroic exercise of power, and in our working lives we have lived with a form of aggressive muscular management..."[5] James Spillane recognizes that this distinction may be a problem when he writes, "…in the heroic leadership tradition, leadership is defined chiefly in terms of its outcome. This is problematic because leadership can occur without evidence of its outcome."[6]

Literature also shows that leaders may have an unhealthy affinity for "best practices." Pierre Beroux, Xavier Gilhau, and Patrick Lagadec see that a gap exists between many crises and the habit of leaders to look for conventional solutions. They write, "Today's crises tend to overwhelm traditional crisis management mechanisms and organisational frameworks. In so doing, they trigger 'stun effects', as even trusted best practice becomes outmoded."[7] David Snowden and Mary Boone point out the shortcomings of leaders that use best practices as a reference point. "Finally, it's important to remember that best practice is, by definition, past practice. Using best practices is common, and often appropriate, in simple contexts. Difficulties arise, however, if staff members are discouraged from bucking the process even when it's not working anymore. Since hindsight no longer leads to foresight after a shift in context, a corresponding change in management style may be called for."[8]

2. Contemporary Crises

While the crises of past decades could not be characterized as "simple," a complexity exists in contemporary crises that did not exist, or more accurately, *could not* exist in prior decades. Early organizational management theory suggested that organizational behavior could be controlled through proper leadership. In 1917, one researcher, Henri Fayol, wrote, "To manage is to forecast and plan, to organize, to

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[5] Lesley Prince, "Eating the Menu Rather than the Dinner: Tao and Leadership," *Leadership* 1, no. 1 (2005): 105–126.

[6] James P. Spillane, *Distributed Leadership*, vol. 4 (Hoboken, NJ: John Wiley & Sons, 2012).

[7] Patrick Lagadec, Xavier Guilhou, and Pierre Béroux, "Rapid Reflection Forces Put to the Reality Test," *Crisis Response Journal* 4, no. 2 (2008): 38–40.

[8] David J. Snowden and Mary E. Boone, "A Leader's Framework for Decision Making," *Harvard Business Review* 85, no. 11 (November 2007): 68–76.

command, to co-ordinate, and to control."[9] Within the same decade, Frederick W. Taylor wrote, "Scientific Management will mean, for the employers and the workmen who adopt it, the elimination of almost all causes for dispute and disagreement between them."[10] For them, organizational problems were solvable. Administrative solutions were a matter of identifying and applying the right formula to achieve the desired outcome. During this era, organizational crises were not viewed as simple, but they may not have been considered insuperable.

Conversely, Berkes addresses the futility of trying to condense and simplify uncertainties and recommends a responding course of action. He writes, "The importance of uncertainties is generally well known, but the irreducible nature of uncertainties in complex systems is generally not appreciated…We need to discover ways to reduce the degree of uncertainty about the dynamics of these complex systems. At the same time, we need to develop new approaches to cope with change that cannot be predicted."[11]

Traditional types of planning assume that crises have a measure of predictability and, while they may be large in scale, they are still linear in nature. However, history reveals that many crises are intrinsically complex and are not linear events that can be "managed" with the right formula. It is known that stability is a passing phase that has been described as a "pause in an unmappable dynamism."[12] Patrick Lagadec and Benjamin Topper also address the issue when they write, "Today hyper-complex crises demand something else, and probably exactly at the opposite; the capacity to ask the tough questions, the preparation to navigate unmapped situations."[13]

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[9] Henri Fayol, Frederick W. Taylor, and Peter F. Drucker, "Management and Decision-Making in Organizations," accessed February 7, 2014, http://www.corwin.com/upm-data/15500_Chapter_3.pdf, 95.

[10] Ibid.

[11] Fikret Berkes, "Understanding Uncertainty and Reducing Vulnerability: Lessons from Resilience Thinking," *Natural Hazards* 41, no. 2 (2007): 283–295.

[12] Joshua Cooper Ramo, *The Age of the Unthinkable: Why the New World Disorder Constantly Surprises Us and What to Do About It*, 1 Back Bay pbk ed. (New York, NY: Back Bay Books, 2009), 285.

[13] Patrick Lagadec and Benjamin Topper, "How Crises Model the Modern World," *International Journal of Risk Analysis and Crisis Response* 2, no. 1 (2012): 21–33.

Literature surrounding complexity science provides comparisons to the nature of contemporary crises. Specifically, Albert-Laszlo Barabasi draws the correlation between the language of complex systems and an act of terrorism with the following quote:

> A dramatic example of the pervasiveness of this new language came after September 11, 2001, when networks acquired a meaning previously unfamiliar to most of us. Most of what led to the tragedy makes perfect sense from a network perspective. Al Qaeda, the terrorist network held responsible for the attacks, was not created in seven days. Driven by religious beliefs and impatience with the existing social and political order, thousands were drawn to the radical organization over several years. The network expanded one node at a time, taking on all the characteristics of a web without a spider. Indeed, al Qaeda failed to turn into the hub-and-spoke network that offers a central leader control over all details. It avoided the tree structure as well, the chain of command characterizing the military and twentieth-century corporations. Rather, it evolved into a self-organized spider less web in which a hierarchy of hubs kept the organization together.[14]

The literature shows that, in one sense, complexity has been leveraged positively in the form of optimization. The result, however, is that the "unmappable dynamism" of instability is compounded in a highly optimized environment. Through the ongoing exercise of optimization, Americans have made themselves increasingly more vulnerable to "interactive complexity and tight coupling."[15] Ramo notes, "we are now tied to one another in ways we can't see, through webs of finance or disease or information, and—here's the dangerous paradox—the more closely we're bound, the less resilient we all become."

If the research bears out the fact that contemporary crises have, in fact, become disproportionately more complex than this nation's methods of adaptively leading through them, then innovation will be necessary. This country has a duty to address the gap.

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[14] Albert-Laszlo Barabasi, *Linked: How Everything is Connected to Everything Else and What It Means* (New York, NY: Plume, 2003), 222.

[15] Charles Perrow, *Normal Accidents: Living with High-Risk Technologies* (New York, NY: Basic Books, 1984), 386.

### 3.	Identifying Alternative Strategies

Michael J. Bolton and Gregory B. Stolcis articulate the need for thinking differently when complex crises occur. "Incremental administrative changes are adequate in addressing organizational problems and improving effectiveness during periods of stability and equilibrium. They are ineffective, however, when 'wicked' problems alter the decision-making environment because there is little time to react to changing conditions. These problems are wicked because they are poorly formulated and fall outside normal boundaries of decision-making."[16]

Initial research indicates that this nation's current reaction to crises is to reference *best practices*. However, best practices is an organizational cliché that brings a sense of comfort to leaders. They are methods that serve as benchmarks for things that have been tested, and subsequently, identified as "as good as can be expected." Literature surrounding sense-making tools, such as Snowden's Cynefin Framework, reveals that a well suited time and place exists for best practices. However, the same tool reveals that a time also exists for emergent and novel approaches to complex crises. It is during these times that best practices may not be good enough. "Humans have a tendency to behave— almost without exception—as though they believe that experience teaches them lessons, in a very cause-consequence, past-present, 'linear' line of thought…We still seem, at every turn, to lack this critical self-awareness, this realization that more of the same is not the solution."[17] It appears that thinking linearly during complex crises may come at a heavy cost.

In spite of the cost, literature shows that barriers to adaptive change do exist. Lagadec and Topper note, "…the leader must have the conviction and the vision to lead the community out of its initial disorientation, and to avoid the two pitfalls that are always present in extreme crises: bureaucratic inertia (where each organization waits until the crisis fits its codes and rules), and the general loss of nerve (not only within the

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[16] Michael J. Bolton and Gregory B. Stolcis, "Overcoming Failure of Imagination in Crisis Management: The Complex Adaptive System," *The Innovation Journal: The Public Sector Innovation Journal* 13, no. 3 (2008): 1–12.

[17] Lagadec and Topper, "How Crises Model the Modern World," 21–33.

public, but throughout the entire chain of command)."[18] Another barrier to employing alternative strategies is risk. Integral to the concept of innovation and change is the admission that the leader is not prepared to handle any and every crisis adequately. It requires an explicit acknowledgement that crises may exceed their current capabilities. While the concept may be self-evident, it is not politically expedient.

The literature review appears to indicate that contemporary crises are more complex than ever before and that this nation's current methods of leading through them are inadequate. It also appears new and creative mechanisms may be available to address that gap. The author investigates the matter using the method outlined as follows.

D.   METHOD

Using literature sources, the research explores crisis complexity, crisis leadership, and alternative leadership strategies in greater detail. It evaluates the applicability of complexity science to current crises. Having identified the manner in which crises have changed, it identifies leadership literature that focuses on current methods of crisis leadership. Once the gap between current crises and current crisis leadership has been identified, the research pursues alternative approaches to leading in complex crises. The analysis is complete when it has examined a number of innovative approaches that may address the gap.

Having articulated how crises have changed, how current leadership methods are unequal to the challenge, and what adaptive leadership styles are available, the research produces a set of recommendations. The next chapter outlines complexity both past and present.

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[18] Lagadec and Topper, "How Crises Model the Modern World," 21–33.

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II.   COMPLEXITY

> Abandon the urge to simplify everything, to look for formulas and easy answers, and to begin to think multi-dimensionally, to glory in the mystery and paradoxes of life, not to be dismayed by the multitude of causes and consequences that are inherent in each experience – to appreciate the fact that life is complex.

> —M. Scott Peck

This chapter outlines how contemporary crises are more complex than those of past eras by describing the basics of complex systems, their application to modern society, and how complexity has, over time, changed the nature of crises.

A.   COMPLEX SYSTEMS

1.   The Basics

Complex means something composed of parts. Its Latin etymology means to weave, braid, or entwine.[19] Similarly, *complexity* involves the intricate arrangement of interactive objects through linkages.[20] In some instances, these intricacies weave together synergistically to create a more formalized result, or *system*. *Complex systems* demonstrate patterns of behavior whose outcomes, while not necessarily predictable, draw attention to the system as a whole in lieu of its individual parts.[21]

According to complexity scientists, complex systems possess common properties:

- They demonstrate complex, dynamic collective behavior. They are networks that consist of large numbers of individual, interacting elements that give rise to hard-to-predict, changing patterns of behavior.[22]

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[19] Douglas Harper, "Online Etymology Dictionary," accessed July 29, 2013, http://www.etymonline.com/index.php?term=complex.

[20] Ibid.

[21] Judith E. Innes and David E. Booher, *Planning with Complexity: An Introduction to Collaborative Rationality for Public Policy* (Oxon, UK; New York, NY: Routledge, 2010).

[22] Snowden and Boone, "A Leader's Framework for Decision Making," 71.

- The interactions within a complex system are "nonlinear." While reviewing the behavior of a complex system, it may appear orderly; however, it is anything but. Even minor changes within the system can produce consequential effects.[23]

- Each typically follows relatively simple rules with no central control or leader. In other words, some are able to form "leaderless networks."[24]

- They adapt. Over time, complex systems change their behavior to improve their chances of survival or success.[25] The dynamic nature of complex systems makes predictive solutions impossible. Instead, solutions "arise from the circumstances."[26] (Also referred to as *emergence*.) As they adapt, their complexity creates an irreversible history.[27]

The complex, dynamic, nonlinear, leaderless, adaptive behavior previously described is sometimes referred to as *self-organizing* behavior. Ted Lewis describes self-organization as "an emergent process of complex systems whereby simplicity is gradually replaced by complexity."[28] Having considered elements that comprise a complex system and how it demonstrates self-organizing behavior, it may be helpful to consider Melanie Mitchell's simplified definition. She describes it as, "A system that exhibits nontrivial emergent and self-organizing behaviors."[29]

2.   Examples of Complex Systems

The natural and synthetic world exhibits examples of complex systems. In nature, they are seen in the social organization of ant colonies. With limited capacity for communication, ants are able to orchestrate highly complex tasks.[30] An astonishing level of sophistication arises out of the intricate combination of these simple insect minds.

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[23] Snowden and Boone, "A Leader's Framework for Decision Making," 71.

[24] Melanie Mitchell, *Complexity: A Guided Tour* (Oxford, UK: Oxford University Press, 2009), 12.

[25] Ibid.

[26] Snowden and Boone, "A Leader's Framework for Decision Making," 71.

[27] Ibid.

[28] Theodore G. Lewis, *Bak's Sand Pile* (Williams, CA: Agile Press, 2011), 377.

[29] Mitchell, *Complexity: A Guided Tour*.

[30] Douglas Hofstadter, *Gödel, Escher, Bach: An Eternal Golden Braid* (New York: Penguin Books, Book Club Edition, 1979).

Biologist Bert Holldobler refers to the collaborative ant-network as a *superorganism* that demonstrates *collective intelligence*.[31]

The self-organized behavior of army ants is what allows tens of thousands of them to cooperatively create body-linked, living bridges on which the group can cross over obstacles to safety. Their system-wide, or networked, behavior also allows them to aggressively overwhelm prey exponentially larger than themselves. Biologist Nigel Franks, a specialist in ants, wrote, "The solitary army ant is behaviorally one of the least sophisticated animals imaginable…If 100 army ants are placed on a flat surface, they will walk around and around in never decreasing circles until they die of exhaustion."[32] The strength of the army ant is not as an individual, but as a complex system.

A manmade version of a complex system is the World Wide Web. According to Mitchell, ."..the Web can be thought of as a self-organizing social system: individuals, with little or no central oversight, perform simple tasks: posting Web pages and linking to other Web pages…and the co-evolutionary relationships between the behavior of search engines and the Web's link structure, all of which lead to what could be called 'adaptive' behavior for the system as a whole."[33] The dynamic, nonlinear, leaderless nature of the Web demonstrates how it is, in fact, a complex system with which many interact, or to which they even contribute, on a daily basis.

Paul Baran, an early architect of the Internet, contemplated the best way to organize it. He believed only three options existed to its design: centralized, decentralized, and distributed (Figure 1). Baran "warned that both the centralized and decentralized structures that dominated communications systems of the time were too vulnerable to attack. Instead, he proposed that the Internet should be designed to have a distributed, mesh-like architecture."[34] The "mesh-like architecture" is the complex networking system in existence today.

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[31] Bert Hölldobler and Edward Osborne Wilson, *The Superorganism: The Beauty, Elegance, and Strangeness of Insect Societies* (New York, NY: WW Norton & Company, 2009).

[32] Nigel R. Franks, "Army Ants: A Collective Intelligence," *American Scientist* 77 (1989): 139.

[33] Mitchell, *Complexity: A Guided Tour*, 10.

[34] Barabasi, *Linked: How Everything is Connected to Everything Else and what it Means*, 145.
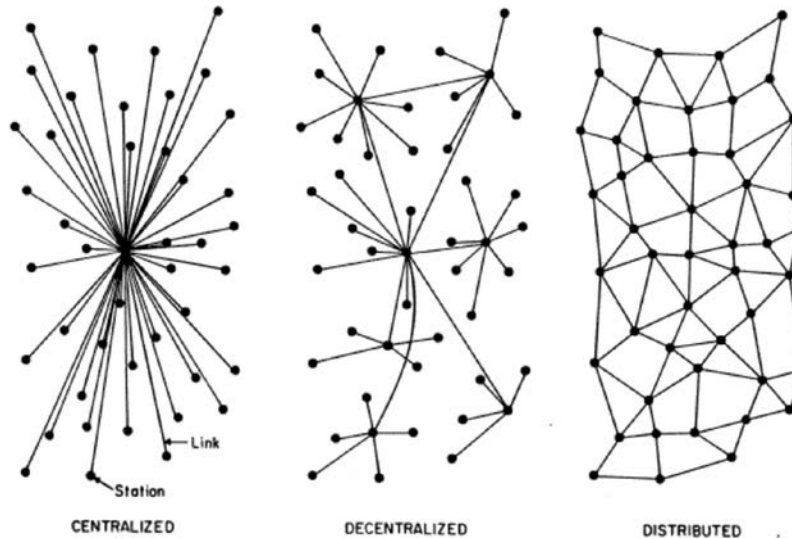
Figure 1.   Baran picture of networks[35]

Stanley Milgram performed a social networking experiment that resulted in the concept known as "six degrees of separation." Using people as *nodes* and their friends as *links*, Milgram set out to determine the fewest number of links between any two nodes. In other words, using the "friend of a friend" networking model, Milgram discovered that any two people in a world of six billion "nodes," could be connected through a maximum of six links.[36] In the spirit of Milgram's work, Albert-Lazlo Barabasi undertook the task of identifying how many degrees of separation existed between any two documents on the Web. He concluded that the "diameter of the Web" was about nineteen. He wrote, "Any document is on average only nineteen clicks away from any other."[37]

According to Barabasi's math, so many documents are on the Web that a one-second scan of each document would take over 300 million years to get through.[38] The significance of Milgram's and Barabasi's observations is that networks as expansive as *the human population* or *documents on the Web* are capable of being connected through

[35] Paul Baran, "On Distributed Communications Networks," *IEEE Transactions on Communications Systems* 12, no. 1 (1964): 1.

[36] Barabasi, *Linked: How Everything is Connected to Everything Else and What It Means*.

[37] Ibid., 34.

[38] Ibid., 37.

remarkably short, intricately linked paths. It appears that, as Jorge Luis Borges put it, "Everything touches everything."[39]

Army ants and the World Wide Web are exemplars of complex systems, but the archetype for the *adaptive* quality of complex systems is the immune system. The very function of the immune system is to overcome threats to facilitate survival. Donella Meadows observes, "A system that can evolve can survive almost any change, by changing itself. The human immune system has the power to develop new responses to some kinds of insults it has never before encountered."[40] The immune system is a demonstration of how, in a dynamic and nonlinear way, a complex system adapts to its environment to survive.

3.   Applying the Principles

The existence of complex systems is not new. Army ants and the immune system did not become collaborative, networking processes within the last few decades. However, it appears that 21st century society has more in common with complex systems than any civilization in history. Using the lens of complexity and complex systems, it is possible to view threats to homeland security in a new way. Bolton and Stolcis write, "…we advocate for the increasing acceptance of complex adaptive systems not only in the physical and social sciences but in crisis management as well."[41] Using this lens, consider how *organizations* replicate principles of complex systems.

4.   Organizations as Complex Systems

What previously may not have been recognized as a complex system, can now be described in more widely understood terms. Increased familiarity with complexity science brings with it the ability to describe the observed behavior more accurately. In his book, *Linked*, Barabasi notes the transformation of terminology after 9/11.

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[39] Barabasi, *Linked: How Everything is Connected to Everything Else and What It Means*, 5.

[40] Donella Meadows and Dianne Wright, *Thinking in Systems* (White River Jct., VT: Chelsea Green Publishing, 2008), 159.

[41] Bolton and Stolcis, *Overcoming Failure of Imagination in Crisis Management: The Complex Adaptive System*, 10.

A dramatic example of the pervasiveness of this new language came after September 11, 2001, when networks acquired a meaning previously unfamiliar to most of us. Most of what led to the tragedy makes perfect sense from a network perspective. Al Qaeda, the terrorist network held responsible for the attacks, was not created in seven days. Driven by religious beliefs and impatience with the existing social and political order, thousands were drawn to the radical organization over several years. The network expanded one node at a time, taking on all the characteristics of a web without a spider. Indeed, al Qaeda failed to turn into the hub-and-spoke network that offers a central leader control over all details. It avoided the tree structure as well, the chain of command characterizing the military and twentieth-century corporations. Rather, it evolved into a self-organized spiderless web in which a hierarchy of hubs kept the organization together.[42]

Using "complex systems thinking," the interconnected nature of the "al Qaeda *network*" is seen, and it can be understood why, in some cases, cutting the proverbial head off the snake may be an inadequate objective.

Al Qaeda is not the only organization to manipulate the interconnected nature of complex systems to corrupt ends. Prior to 9/11, the Lebanon-based terrorist organization, Hezbollah, was responsible for more American deaths than any other group.[43] Its secretary-general, Hassan Nasrallah, proclaimed, "Death to America was, is, and will stay our slogan."[44]

Hezbollah utilizes a swarming, immune system-like method of organization. RAND scholars John Arquilla and David Ronfeldt write, "This [swarming] approach is based on a general instruction to Hizb'allah's widely distributed units to converge—like antibodies, it seems—on any intruders in a given area. No central leadership is required."[45] Hezbollah is leveraging the characteristics of a complex system in its display of leaderless, self-organizing behavior. The principles of complex systems are not only evident in organizations, but in contemporary crises themselves.

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[42] Barabasi, *Linked: How Everything is Connected to Everything Else and What It Means*, 222.

[43] Daniel Byman, "Should Hezbollah Be Next?" *Foreign Affairs*, 2003, 54.

[44] Ibid.

[45] John Arquilla and David Ronfeldt, *Swarming and the Future of Conflict*, No. RAND/D8-311-OSD (Santa Monica, CA: RAND Corporation, 2000), 52.

5.   Crises As Complex Systems

Not all crises are created equal. Complex crises are ill defined, are nearly impossible to anticipate, and they produce prolonged periods of disequilibrium. One form of complex crises is what Rittel and Weber call "wicked problems." They write, "As you will see, we are calling them 'wicked' not because these properties are themselves ethically deplorable. We use the term 'wicked' in a meaning akin to that of 'malignant' (in contrast to 'benign') or 'vicious' (like a circle) or 'tricky' (like a leprechaun) or 'aggressive' (like a lion, in contrast to the docility of a lamb)."[46]

While the crises of past decades could not be characterized as "simple," a complexity exists in contemporary crises that did not exist, or more accurately, *could not* exist in prior decades. Of note are the technological advances that have become commonplace in today's world within the last 20 years. The year 1995 is considered the first year that the Internet became commercialized. Cell phones were not widely used until the 2000s and the "mobile web" has only been available since 2007. Google did not exist until 1998, Facebook arrived in 2004, and YouTube in 2005.[47] The introduction of such technologies gave rise to complex crisis *opportunities*. While a mere infant in the scope of history, things, such as Google, iPhones and YouTube, have provided opportunities for *increased networking*, a fertile ground for *leaderless networks*, and the emergence of *adaptation* in crises.

Consider Wikileaks, the online, non-profit organization that exists to publicize classified information and news leaks. Its first "success" was in 2007, when it published detailed military procedures regarding the detention camp at Guantanamo Bay.[48] In 2008, it leaked "U.S. military rules of engagement in Iraq," which allowed members of Saddam Hussein's government to escape to neighboring countries.[49] For Wikileaks, no single

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[46] Horst W. J. Rittel and Melvin M. Webber, "Dilemmas in a General Theory of Planning," *Policy Sciences* 4, no. 2 (1973): 160.

[47] Cameron Chapman, "The History of the Internet in a Nutshell," November 15, 2009, http://sixrevisions.com/resources/the-history-of-the-Internet-in-a-nutshell/.

[48] Yochai Benkler, "Free Irresponsible Press: Wikileaks and the Battle Over the Soul of the Networked Fourth Estate," 46 *Harv.CR-CLL Rev.* 311 (2011): 316.

[49] Ibid.

individual gathers all the leaked intelligence. It leverages the knowledge and resources of a huge number of individuals (*networking*). No "one iconic leader," who, if removed, would eliminate the threats that created the leaks (*leaderless network*). If an individual at the bottom (a source), or at the top (the CEO) were eliminated, the organization would continue. If the organization itself was dismantled, it is likely that another would fill the void, and may even become an improved, more complex version (*adaptation*).

Another example is the 2008 terrorist attack in Mumbai, India in which 166 were killed and 300 wounded over the course of the three-day siege. The terrorists navigated across the Arabian Sea to Mumbai using a global positioning system handset. Leading up to the attack, they maintained communications with their operational command in Pakistan via satellite phone. They were familiar with their targets and the most direct routes to them using images from Google Earth. The operatives used voiceover Internet phone servers to interact during the attack, which made it difficult for law enforcement to intercept or disrupt their communications. In addition, the Pakistani-based handlers watched television media coverage and monitored social media in an effort to direct the executioners' movement more effectively to increase the death count.[50]

Historic leadership methods are inadequate when it comes to these forms of crisis complexity. Early organizational management theory suggested that organizational behavior could be controlled through proper leadership. In 1917, one researcher, Henri Fayol, wrote, "To manage is to forecast and plan, to organize, to command, to co-ordinate, and to control."[51] Within the same decade, Frederick W. Taylor wrote, "Scientific Management will mean, for the employers and the workmen who adopt it, the elimination of almost all causes for dispute and disagreement between them."[52] For them, organizational problems were solvable. Administrative solutions were a matter of identifying and applying the right formula to achieve the desired outcome. During this

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[50] William LaRaia and Michael C. Walker, "The Siege in Mumbai: A Conventional Terrorist Attack Aided by Modern Technology," in *A New Understanding of Terrorism*, ed. M. R. Haberfeld and Agostino von Hassdell (New York, NY: Springer, 2009), 326.

[51] Fayol, Taylor and Drucker, "Management and Decision-Making in Organizations," 95.

[52] Ibid.

era, organizational crises were not viewed as simple, but they lacked the kinds of complex qualities possible in the contemporary world.

Traditional types of planning assume that crises have a measure of predictability and, while they may be large in scale, they are still linear in nature. More recently, however, it has been acknowledged that many crises (such as those created by Wikileaks or those seen in Mumbai) are decidedly complex and not linear events that can be "managed" with the right formula. Stability is a passing phase that has been described as a "pause in an unmappable dynamism."[53] According to Lagadec and Topper, "Today hyper-complex crises demand something else, and probably exactly at the opposite; the capacity to ask the tough questions, the preparation to navigate unmapped situations."[54]

Ideally, homeland security leaders would find ways to reduce uncertainties when possible without oversimplifying their evaluation of the crisis. A need exists to increase the complexity in thinking without irresponsibly reducing the scope of the problem. Berkes writes, "We need to discover ways to reduce the degree of uncertainty about the dynamics of these complex systems. At the same time, we need to develop new approaches to cope with change that cannot be predicted."[55]

In addition to large-scale networking, leaderless networks and adaptation, the modern world has introduced novel forms of *vulnerability*. Contributing to the "hyper-complexity" of modern crises is the optimization of critical infrastructure. Ted Lewis writes, "Modern systems weren't designed to be resilient, self-correcting, and secure, but rather to be low-cost, efficient, and optimized for profitability. As a consequence, the critical infrastructures supporting modern civilization have evolved over the centuries into fragile, error-prone systems."[56] Lewis points out that, perhaps with the best of intentions, this nation is making itself increasingly vulnerable in new and creative ways.

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[53] Ramo, *The Age of the Unthinkable: Why the New World Disorder Constantly Surprises Us and What to Do About It*, 49.

[54] Lagadec and Topper, "How Crises Model the Modern World," 23.

[55] Berkes, "Understanding Uncertainty and Reducing Vulnerability: Lessons from Resilience Thinking," 285.

[56] Lewis, *Bak's Sand Pile*, 377.

Increased dependence on technology and appetite for efficiency appears to have also increased this vulnerability.

In 2011, a wastewater treatment plant employee arrived for his graveyard shift in Gilbert, Arizona. The plant was optimized to the point that a single employee could run the operation that spanned a quarter-mile in each direction. The city employee, unhappy with political decisions made by government administrators, decided to sabotage the plant. He systematically shut down the plant in an effort to create a methane gas buildup that he would eventually ignite to create a massive explosion. The man was able to single-handedly "take the plant hostage" and prevent anyone else from thwarting his actions due to its highly efficient design. The man eventually surrendered with less than an hour from the gas building to dangerous proportions and sewage backing up into the homes and streets of three different cities. While certainly not the intent of designers, the wastewater treatment plant became an oversized object of vulnerability when it was made "low-cost, efficient and optimized for profitability."

As illustrated by Milgram and Barabasi, people live in a small world. Given the right set of circumstances, a relatively short distance exists between any two people, documents, strategies, projects, or for that matter, cabals. In a very real sense, interconnectedness facilitated by the Internet, social media, and other technologies, has made this world even smaller, and not always for the better. Rodrigo Nieto-Gomez notes, "Unfortunately, innovation has a dark side. The same accelerated combinatorial evolution that empowers entrepreneurs to rapidly improve our high tech environment can, and often is, used to harm the innocent."[57]

Today's networked world creates an environment in which creative convergence can facilitate unique criminal acts. The confluence of increased connectivity with increased vulnerability is only a portion of what makes today's crises more complex. No example is more poignant than 9/11.

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[57] Rodrigo Nieto-Gómez, "Preventing the Next 9/10 the Homeland Security Challenges of Technological Evolution and Convergence in the Next Ten Years," *Home Security Affairs*, 2.

On September 11, 2001, "a few" hijackers were able to bring to a halt the entire nation, cripple the economy, place continuity of government at risk and inflict more than 3000 casualties. The only other occasion when the United States suffered comparable losses from a single attack was during Pearl Harbor, when the combined fleet of six carrier battle groups (the Kido Butai) backed by the full power of the Japanese Empire was deployed to accomplish a similar result. In 2001, a cell of nineteen hijackers did what only a powerful empire could do in 1941.[58]

On 9/11, 19 men from four different countries coordinated the takeover of four civilian aircraft with simple box cutters to use the airplanes as missiles to attack the United States inside of its own borders, a complex crisis that could not have been possible a few decades ago.

Even after suffering the consequences of 9/11, the United States appears to be ill prepared to "navigate unmapped situations." In its findings, the 9/11 Commission wrote, "We believe the 9/11 attacks revealed four kinds of failures: in imagination, policy, capabilities, and management."[59] In one respect, the observation that this nation *failed to imagine* the method of attack is an admission that creative crises exist; that 9/11 was a novel approach. However, the statement implies that this country could (and should) have prevented it if only its citizens had been more "imaginative." What the statement fails to consider is that even the most complex event appears obvious with the 20/20 vision of hindsight. David Snowden writes, "One of the confusing aspects of a complex system is that after the event, the relationship between cause and effect appears ordered; it is retrospectively coherent. After the tragic events of 911 it appeared obvious that people being trained to fly but not to take off and land was a weak signal."[60]

The U.S. government is not ignorant of the complex challenges that face the contemporary homeland security environment. In the 2010 Quadrennial Defense Review, the Department of Defense wrote, "Globalization has transformed the process of

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[58] Rodrigo Nieto-Gómez, "Power of "the Few": A Key Strategic Challenge for the Permanently Disrupted High-Tech Homeland Security Environment," *Home Security Affairs*, 37.

[59] The National Commission on Terrorist Attacks upon the United States, *The 9/11 Commission Report: Final Report of the National Commission on Terrorist Attacks upon the United States* (Washington, DC: U.S. Government Printing Office, 2011), 339.

[60] David Snowden, "Good Fences Make Good Neighbors," *Information, Knowledge, Systems Management* 10, no. 1 (2011): 142.

technological innovation while lowering entry barriers for a wider range of actors to develop and acquire advanced technologies. As technological innovation and global information flows accelerate, non-state actors will continue to gain influence and capabilities that, during the previous century, remained largely the purview of states."[61] The U.S. government is aware that complexity exists in contemporary crises, but are they adequately *preparing to lead* through them?

6.   What Is Known

It is known that a familiarity with complex systems improves the understanding of many of the threats faced in the modern world. It helps individuals to ask better questions in an effort to reach more appropriate answers. Evaluating crises through the eyes of complexity science teaches people that even the most wildly imaginative think tank cannot envision every possible harmful scenario. Wicked problems exist that simply cannot be predicted. While the world may have always presented crises that contained more variables than anyone could adequately address, today's world has ushered in opportunities for complexity to which it has never before been exposed. Increased levels of large-scale networking, leaderless networks, novel methods of adaptability, and unintended vulnerability have changed the game in a short amount of time.

Using the principles of complexity science to recognize the complexity in contemporary crises is a good start, but it is necessary to ask if this nation is *leading* with that in mind. The next chapter examines methods of leadership and how they relate to the complexity of contemporary crises.

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[61] Department of Defense, *Quadrennial Defense Review* (Washington, DC: Department of Defense, 2010), 30.

III. MALADAPTIVE LEADERSHIP

My great concern is not whether you have failed, but whether you are content with your failure.

—Abraham Lincoln

This chapter includes a discussion on "maladaptive leadership." It describes two specific examples of maladaptive leadership in "heroic leadership" and the use of "best practices." It closes with a summary of "what is known" based on the complexity of contemporary crises (from the previous section) and the routine exercise of maladaptive leadership.

A. MALADAPTIVE LEADERSHIP

Ecologist Crawford S. Holling wrote that *adaptive capacity* is "the resilience of the system, a measure of its vulnerability to unexpected or unpredictable shocks. This property can be thought of as the opposite of the vulnerability of the system."[62] Conversely, he described *maladaptive systems* as ones that suffer from "an impoverished state" that can result in "low connectedness, low potential, and low resilience."[63] Likewise, Joshua Ramo wrote, "Maladaptive systems were doomed because they couldn't change or adjust fast enough in the face of surprise. Ecologists call this situation 'lock-in,' which captures the way in which inflexibility and mistakes become a prison of sorts as time goes on."[64]

The author suggests that the contemporary use of traditional leadership is slow to recognize the need for organizational change, and as a result, is experiencing lock-in. It is, in a sense, demonstrating *maladaptive leadership*. Its inflexible nature leads to increased vulnerability to catastrophic failure, and decreased resilience to complex

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[62] Crawford S. Holling, "Understanding the Complexity of Economic, Ecological, and Social Systems," *Ecosystems* 4, no. 5 (2001): 390–405.

[63] Ibid.

[64] Ramo, *The Age of the Unthinkable: Why the New World Disorder Constantly Surprises Us and What to Do About It*, 285.

problems. Like systems, maladaptive leaders experience an impoverished state due to the same low connectedness, low potential, and low resilience. Current forms of maladaptive leadership are demonstrated in two significant ways, *heroic leadership* and the overreliance on *best practices*.

B.   HEROIC LEADERSHIP

As its name indicates, heroic leadership operates on the assumption that the individual at the top of an organization will save the day, regardless of the severity of the crisis (perhaps even more so when great risk is involved). Hollywood's portrayal of the "hero-leader," albeit hyperbolic, perpetuates the image of the modern exemplary leader. Consider Captain Kirk of the Starship Enterprise. In a standard episode of *Star Trek*, he served as the chief executive of a ship with a crew of 430.[65] In addition to his duty to superintend an enormous aircraft and a sizable crew, he personally traveled to strange lands where he single-handedly resolved the impending catastrophe, only to return to the ship's bridge where he resumed the mundane tasks of day-to-day leadership.

Like Captain Kirk, the hero-leader's efficacy is measured in the ability to accurately identify crises and adequately apply the appropriate solution. James Spillane writes, "…in the heroic leadership tradition, leadership is defined chiefly in terms of its outcome."[66] For the hero-leader, the organization knows what the desired outcome is and looks for deliverance in its mythical leader. An inability to deliver on expected outcomes in the heroic leadership system is seen as a failure of leadership. If the leader is unable to deliver the right answers expediently, this person must not be the leader the organization needs.

In the heroic leadership model, subordinates stand at the ready to support the leader's actions and the remainder of the organization is prepared to respond to the resulting directives. By and large, success or failure is attributed directly to the leader. Annie Pye notes, "Much of early research into leadership implied it was something which

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[65] Ben Robinson and Marcus Riley, *Star Trek: USS Enterprise: Haynes Manual* (San Jose, CA: Simon and Schuster, 2010).

[66] Spillane, *Distributed Leadership*.

was 'done to' other people. The leader (person) often becomes confused with the leadership (process) and outcomes in terms of social influence are often over-attributed to the influence of the leader."[67] The focus on outcomes draws a direct line between cause and effect, which is further demonstrated in the fact that it "suits our current pay-for-performance environment."[68]

The maladaptive hero-leader thinks in a formulaic fashion. Through years of experience and numerous high-level training courses, he amasses a host of solutions, expectantly waiting for the corresponding crisis. Problem solving at this point becomes a matter of following a mental matrix. The greater the amount of training and experience, the more complex the matrix becomes and the more prepared the leader is to "save the day." However, the use of matrices, regardless of their size and complexity, is still a formulaic response that lacks ingenuity or, for that matter, real *thinking*.

This "lack of real thinking" about future crises is what philosopher Martin Heidegger termed "calculative thinking."[69] Elizabeth Smythe and Andrew Norton write, "Calculative thinking computes. It computes ever new, ever more promising and at the same time more economical possibilities. Calculative thinking races from one prospect to the next."[70] They note that, "[Heidegger's] concern was that thinking itself was being dictated to by nothing more than a manipulation of operational concepts, representational models, and models of thinking."[71] Calculative thinking assumes a simplicity that is irreconcilable with truly complex crises.

It stands to reason that hero-leaders see crises as scientifically solvable. Since the 19th and early 20th centuries, management theories have maintained the foundational principles of "reductionism, determinism, and equilibrium."[72] Cynthia E. Renaud notes

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[67] Annie Pye, "Leadership and Organizing: Sensemaking in Action," *Leadership* 1, no. 1 (2005): 34.

[68] Ibid.

[69] Martin Heidegger, *Discourse on Thinking* (New York, NY: HarperCollins, 1969), 4.

[70] Elizabeth Smythe and Andrew Norton, "Thinking as Leadership/Leadership As Thinking," *Leadership* 3, no. 1 (2007): 67.

[71] Ibid.

[72] Kevin J. Dooley, "A Complex Adaptive Systems Model of Organization Change," *Nonlinear Dynamics, Psychology, and Life Sciences* 1, no. 1 (1997): 69–97.

that even in homeland security, the ICS has become "a series of checklists and tasks tending to focus first responders on process instead of purpose."[73]

Western intellectual habits predate the management theories of the 19th century. Ingrained in American society is the Aristotelian notion of being able to "understand something only if you could break it apart and examine all the pieces."[74] Margaret Wheatley also recognizes the linear method of problem solving may be outdated.

> Scientists in many different disciplines are questioning whether we can adequately explain how the world works by using the machine imagery emphasized in the seventeenth century by such great geniuses as Sir Isaac Newton and René Descartes. This machine imagery leads to the belief that studying the parts is the key to understanding the whole. Things are taken apart, dissected literally or figuratively (as we have done with business functions, academic disciplines, areas of specialization, human body parts), and then put back together without any significant loss. The assumption is that the more we know about the workings of each piece, the more we will learn about the whole.[75]

In a unique comparison of Taoism to leadership, Lesley Prince notes that the Western way of thinking classifies leadership as a noun "and therefore as a separable object of study."[76] In her comparison of the traditions, she writes, "Whereas for the West leadership is about active and shaping control, for Taoism it is more about engagement, understanding and co-ordination."[77] Again, "Although in the West we recognize the distinction, priority is still given to task and instrumental values. As a consequence our primary models still present leadership as the heroic exercise of power, and in our working lives we have lived with a form of aggressive muscular management..."[78]

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[73] Cynthia E. Ranaud, "Making Sense in the Edge of Chaos: A Framework for Effective Initial Response Efforts to Large-Scale Incidents" (master's thesis, Naval Postgraduate School, 2010), 75.

[74] Ramo, *The Age of the Unthinkable: Why the New World Disorder Constantly Surprises Us and What to Do About It*, 155.

[75] Margaret J. Wheatley, *Leadership and the New Science: Discovering Order in a Chaotic World* (San Francisco, CA: Berrett-Koehler, 2010).

[76] Prince, "Eating the Menu Rather than the Dinner: Tao and Leadership," 105.

[77] Ibid.

[78] Ibid., 120.

For the hero-leader then, leadership has much to do with control. An optimum outcome for which the leader strives and the path to that outcome, it seems, looks very much like a linear procedure. The exercise of control through procedures, formulas or matrices could actually prove to be a hindrance. "The major challenge today is to prepare leaders so that the creative approach will prevail at the right moment. Unfortunately, the entire organizational, administrative and institutional culture normally tends to fall into procedural thinking."[79]

The ideal fit for a hero-leader is a highly centralized organization. In such organizations, it is believed that the top leader drives the response to crisis. "In this conception of leadership, crisis management consists of planning and control: the plan gives rise to effective coordination; leaders manage the coordinated network from their crisis centers. When the response is perceived to fail, there is a call for better coordination and stronger leadership. The result is more plans, which emphasize further centralization of authority: bureaucratic pyramids and a boss-of-the-bosses are supposed to forge coordination where it is not forthcoming spontaneously."[80]

The authors of *The Politics of Crisis Management* also write, "In reality, the quality of the crisis response has less to do with planning and top-level control than these policies of centralization assume. A truly effective crisis response cannot be forced: it is to a large extent the result of a naturally evolving process. It cannot be managed in linear, step-by-step and comprehensive fashion from a single crisis center, however full of top decision makers and stacked with state-of-the-art information technology."[81]

The hero-leader is never more comfortable than when leading through a crisis for which a procedure exists. The writers of Star Trek endowed a single character with the deific problem-solving creativity found only in Hollywood scripts. For many, employing a heroic leadership mentality can become an all-or-nothing proposition. The complex crisis that does not add up for the calculative thinker may have catastrophic results.

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[79] Lagadec and Topper, "How Crises Model the Modern World," 27.

[80] Boin, *The Politics of Crisis Management: Public Leadership Under Pressure*, 64.

[81] Ibid.

C.   BEST PRACTICES

"Best practices" is an organizational cliché that brings a sense of comfort to leaders. They are methods that serve as benchmarks for things that have been tested and subsequently identified as "as good as can be expected." They are an invitation to assent to the status quo. While there is a time and place well suited for best practices, the throes of a crisis are not likely to be one. During these times, best practices may not be good enough. Snowden and Boone remark, ."..it's important to remember that best practice is, by definition, past practice. Using best practices is common, and often appropriate, in simple contexts. Difficulties arise, however, if staff members are discouraged from bucking the process even when it's not working anymore. Since hindsight no longer leads to foresight after a shift in context, a corresponding change in management style may be called for."[82]

This nation's methods of leadership appear to be consistent with the adage, "Fool me once, shame on you. Fool me twice, shame on me." This preoccupation with looking backward at past practices in an effort to say "never again" to a specific crisis stifles the kinds of innovation and creative problem solving needed to solve the next crisis.

"Humans have a tendency to behave—almost without exception—as though they believe that experience teaches them lessons, in a very cause-consequence, past-present, 'linear' line of thought…We still seem, at every turn, to lack this critical self-awareness, this realization that more of the same is not the solution."[83] It is cause-consequence thinking that accounts for the 9/11 Commission's comment, "On the morning of 9/11 the existing protocol was unsuited in every respect for what was about to happen."[84] Similarly, on the heels of the Lehman Brothers bankruptcy, Senate Majority Leader Harry Reid lamented, "No one knows what to do. We are in a new territory here. This is a new game. They don't know what to do."[85]

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[82] Snowden and Boone, "A Leader's Framework for Decision Making," 71.

[83] Lagadec and Topper, "How Crises Model the Modern World," 23.

[84] The National Commission on Terrorist Attacks upon the United States, *The 9/11 Commission Report: Final Report of the National Commission on Terrorist Attacks upon the United States*, 18.

[85] Lagadec and Topper, "How Crises Model the Modern World."

Where heroic leadership oversimplifies the *solution*, best practices oversimplifies the *problem*. It assumes that an effect (the crisis) has an identifiable cause. It looks backward at what happened, distills it to its "root cause," and then creates a solution to that cause. "A common belief is that some set of factors 'causes' a crisis…it would be more precise to speak of escalatory processes that undermine a social system's capacity to cope with disturbances."[86]

It is naïve to think that in a chaotic crisis, a single best way would solve the problem. It is improbable that a best practice exists that a hero-leader can reference that will save the day. Consequently, when complex crises do not fit the best practices mold, it can lead to inaction on the part of maladaptive leaders. Erwan Lagadec writes:

> As soon as crisis erupts, collective intelligence somehow finds itself paralyzed; and communication becomes impossible, while leadership vanishes. Officials grab for dear life onto basic tools that they were taught would work. This reflects the prevalent tendency in the training of leaders: as their teachers adopt a magisterial posture, claiming to hold, and divulge, all the right answers, the right tools, 'what you are going to do.' And then leaders go home with a thick file of 'best practices,' and they think 'it's all in there': but it doesn't work!—because these ready-made tools will be circumvented and made irrelevant by crisis.[87]

Maladaptive leaders maintain a mental, or even real, Rolodex of solutions that represents a kind of "guarantee" against catastrophic failure until, of course, a crisis occurs for which no past practice to reference is available. It is then that leaders move quickly from a position of confidence and security to that of a powerless victim. Lagadec writes, "Piling up written plans, rules, 'coordination' committees and 'communication' best practices remains the norm. People are prepared to manage according to solid rules, anchored on solid ground, and selected for their 'inside the box' excellence. As soon as people discover that the situation does not correspond to the nominal framework, they tend to suffer instant paralysis and breakdown."[88]

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[86] Boin, *The Politics of Crisis Management: Public Leadership Under Pressure*, 5.

[87] Erwan Lagadec, "Unconventional Crises, Unconventional Responses: Reforming Leadership in the Age of Catastrophic Crises and Hypercomplexity," *Center for Transatlantic Relations, Paul H. Nitze School of Advanced International Studies, Johns Hopkins University*, 2007, 127.

[88] Lagadec and Topper, "How Crises Model the Modern World," 27.

Recent attempts to implement greater levels of hierarchy to already highly centralized organizations are testimonies to this country's reliance on heroic leadership and best practices. The creation and implementation of the Department of Homeland Security and the Office of the Director of National Intelligence illustrates Congress' expectation that an additional layer of control will make the nation safer. In other words, if federal organizations have the right leader (a hero-leader) possessing all the right information (best practices), it is then possible to secure the nation more effectively. While day-to-day responsibilities of those organizations may, in fact, enhance national security, the idea that additional layers of authority requiring higher degrees of centralization will provide improved leadership in crisis is flawed.

> The standard administrative approach to solving complex problems has been to organize work involving multiple agents and tasks hierarchically. Hierarchy is used to establish control, specify tasks, allocate responsibilities and reporting procedures, and presumably gain reliability and efficiency in workflow. This approach works reasonably well in routine circumstances when there is time to plan actions, train personnel, identify problems, and correct mistakes. Under the urgent, dynamic conditions of disaster, however, such procedures almost always fail.[89]

Lagadec and Topper use science to analogize the phenomenon. "In physics, dealing with complex systems usually starts with trying to linearize the equations involved, i.e., getting rid of the complexity…we argue that the way we are currently dealing with a crisis is similar to that over-simplified approach, but that recent major crises indicate that it has become ineffective."[90]

D.   WHAT IS KNOWN

It is known that contemporary crises have become increasingly complex and that many leadership paradigms have not accommodated that transition. It is not that people are incapable of leading through crises effectively, but that traditional, maladaptive methods of leadership are inadequate for accomplishing it. To that end, Margaret Wheatley writes, "I no longer believe that organizations are inherently unmanageable in

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[89] Louise K. Comfort, "Managing Intergovernmental Responses to Terrorism and Other Extreme Events," *Publius: The Journal of Federalism* 32, no. 4 (2002): 33.

[90] Lagadec and Topper, "How Crises Model the Modern World," 24.

this world of constant flux and unpredictability. Rather, I believe that our present ways of organizing are outmoded, and that the longer we remain entrenched in our old ways, the further we move from those wonderful breakthroughs in understanding that the world of science calls 'elegant.'"[91]

What is needed, therefore, is to find ways to avoid leading in a maladaptive fashion. Leadership tools are needed that incorporate more creativity and risk taking, and more organizations that inculcate the habit of resourceful leading. In "Overcoming Failure of Imagination in Crisis Management," the authors express concern that "catastrophic danger to homeland security predictably will increase as long as leaders resist exploring ingenious, and heretofore untried management approaches in preventing them."[92]

Smythe and Norton also agree with the need for innovation. They write, "The experience of 'being' a leader is complex, uncertain and contradictory. Pre-organized, logical, follow-the-plan thinking is not enough in itself. There needs to be attentiveness, attunement and openness to the not-yet-known, all of which are already there in thinking that simply let's thinking think."[93]

It appears that maladaptive leadership is the status quo of contemporary leadership. *Ingenious*, *untried management approaches* that are *attentive* to the *not-yet-known* are needed. What is needed is *adaptive leadership*.

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[91] Wheatley, *Leadership and the New Science: Discovering Order in a Chaotic World*, 5.

[92] Bolton and Stolcis, "Overcoming Failure of Imagination in Crisis Management: The Complex Adaptive System," 8.

[93] Smythe and Norton, "Thinking as Leadership/Leadership As Thinking," 67.

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IV. ADAPTIVE LEADERSHIP

Do what you can, with what you have, where you are.

—Theodore Roosevelt

This chapter describes adaptive leadership and explores two foundational principles vital to its successful exercise. Specifically, it examines sensemaking in crises and the establishment of objectives.

A. ADAPTIVE LEADERSHIP—WHAT IT IS

"Adaptive" conveys the idea of transforming to accommodate a dynamic environment.[94] Likewise, "adaptive leadership" is the ability of a leader to recognize the dynamic nature of a complex crisis and alter the leader's thinking (and leading) accordingly.

An adaptive leader deals with the immediate needs of a crisis, but not at the expense of long-term objectives. In their book entitled, *The Practice of Adaptive Leadership*, authors Ronald Abadian Heifetz, Alexander Grashow, and Martin Linsky use the analogy of a party. While on the dance floor, the host is led to believe that the celebration is going well. From this perspective, partygoers are laughing, dancing, and thoroughly enjoying the festivities. However, a view from the balcony reveals that the music is so loud that everyone is relegated to one side of the room. As the music changes, many people stop dancing. Others are disengaged entirely from the event and are standing near the exits.[95] A change in perspective from intimate participant to attentive overseer makes for an entirely different analysis of the situation.

Adaptive leaders have a "balcony view." They maintain a vantage point that allows them to focus on finding solutions to the "long game" and not on being a hero-

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[94] Nick Obolensky, *Complex Adaptive Leadership* (London, UK: Gower Publishing Company, Limited, 2010).

[95] Ronald Abadian Heifetz, Alexander Grashow, and Martin Linsky, *The Practice of Adaptive Leadership: Tools and Tactics for Changing Your Organization and the World* (Boston, MA: Harvard Business Press, 2009). 7.

leader for the short one. An adaptive leader recognizes the complexity in a complex crisis and understands that calculative thinking will not solve it. They recognize the need for "ingenious, untried management approaches" and seek opportunities to apply them. Heifetz, Grashow, and Linsky describe the gap filled with adaptive leadership. They write, "What is needed from a leadership perspective are new forms of improvisational expertise, a kind of process expertise that knows prudently how to experiment with never-been-tried-before relationships, means of communication, and ways of interacting that will help people develop solutions that build upon and surpass the wisdom of today's experts."[96]

As it relates to this research, adaptive leadership is leadership that accurately recognizes a complex crisis and leads through the resulting state of disequilibrium using combinations of conventional and innovative solutions where appropriate. Further, adaptive leadership looks both forward and back to evaluate the effectiveness of applied solutions and searches for new ones as the crisis unfolds. That said, the first step in dealing with any complex crisis is making some sense out of it.

B.   SENSEMAKING IN CRISIS

"Sensemaking," as its name indicates, is an effort to make something sensible (i.e., to be able to apply some level of understanding to it).[97] Ironically, making sense of something new and unusual requires reflection on what has been previously experienced. To that end, Karl Weick wrote, "people can know what they are doing only after they have done it."[98] What occupies the space between the new and complex and "been-there, done-that" is a realm of uncertainty and potential. It is *that* space that demands adaptive leadership.

Adaptive leaders have to be comfortable with that space, with the unknown. Decision making is typically better when more information is available, but an adaptive

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[96] Heifetz, Grashow, and Linsky, *The Practice of Adaptive Leadership: Tools and Tactics for Changing Your Organization and the World*, 2.

[97] Pye, "Leadership and Organizing: Sensemaking in Action," 38.

[98] Karl E. Weick, *Sensemaking in Organizations*, vol. 3 (Thousand Oaks, CA: Sage, 1995), 49.

leader has the courage to act in spite of confusion and misinformation. In *How Crises Model the Modern World*, the authors note the tendency toward inaction for many leaders in these contexts.

> Leaders should be mentally prepared to take an approach to intelligence and action that is more creative than procedural. The problem is that our habits at times of emergency and crisis are usually just the opposite. With very little information available and even less of it verified, the leader must have the conviction and the vision to lead the community out of its initial disorientation, and to avoid the two pitfalls that are always present in extreme crises: bureaucratic inertia (where each organization waits until the crisis fits its codes and rules), and the general loss of nerve (not only within the public, but throughout the entire chain of command).[99]

Operating in uncertainty does not mean that adaptive leaders must be able to accomplish everything using nothing. It means that complex crises call for more complex solutions than the traditionally available tools. It means leaders need to look at their current resources in a new way. Snowden poignantly illustrates the difference between many of today's leaders and an adaptive leader using the metaphor of a chef and his kitchen.

> If you employ a recipe book user to cook a meal for you, then your kitchen will have to be engineered to match a standard design. All the ingredients will be lined up in appropriate sized bowls and, as long as nothing unexpected happens you will get a reasonable meal. The Chef on the other hand enters your kitchen and creates a wonderful meal from whatever happens to be lying around. This is not to say that recipe books do not have utility, or that the chef will not use them from time to time.[100]

Sensemaking is the ability to move from recipe book user to chef. It is the ability to *recognize* the complexity of the crisis and to *diagnose* it appropriately. Heifetz, Grashow, and Linksy claim that the skill of diagnosing is the most important, but "undervalued capacity" of adaptive leadership.[101] Adaptive leadership requires a willingness to accept the circumstances at hand and to operate within them or to make

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[99] Lagadec and Topper, "How Crises Model the Modern World," 28.

[100] Snowden, "Good Fences Make Good Neighbors," 136.

[101] Heifetz, Grashow, and Linsky, *The Practice of Adaptive Leadership: Tools and Tactics for Changing Your Organization and the World*, 7.

decisions in spite of a lack of resources and information. During the uncertainty created by complex crises, it may not be helpful to create a new "comfort zone," but to identify ways to even advance or succeed during the chaotic circumstance. Ramo notes that in these situations "the key words are breadth of thinking; the willingness to learn and innovate; appetite for risk; being prepared to confront the inevitable; and having a very good supporting process that allows decisions to be made at a pace that meets the speed of the disruption."[102] Innovation, risk, confronting the inevitable, and making decisions at the pace that meets the speed of disruption, is the antithesis of maladaptive leadership. It is leading with eyes and mind wide open.

At the outset, adaptive leaders must make sense of the environment in which they have been thrust by wisely interpreting the *context* of the situation. In the complexity of contemporary crises, adaptive leaders may need to "act against their instincts."[103] A healthy sense of context will allow adaptive leaders to show flexibility in leadership style and in the use of resources, knowing "when to look to the wisdom of the group and when to take his own counsel."[104]

Consider the contrasting response to the Deepwater Horizon oil spill by two leaders involved in the crisis, BP chief executive officer Tony Hayward, and U.S. Coast Guard Admiral Thad Allen. The disaster was the largest oil spill in history, with an estimated 4.9 million barrels of oil released into the Gulf of Mexico from a sea-floor oil gusher unable to be stopped for 87 days. The event occurred in April 2010 when the oil rig Deepwater Horizon exploded and sunk, killing eleven people.[105]

After it began, CEO Tony Hayward reportedly told other BP executives, "What the hell did we do to deserve this?"[106] During the crisis, he made the claim that the spill

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[102] Lagadec, *Unconventional Crises, Unconventional Responses: Reforming Leadership in the Age of Catastrophic Crises and Hypercomplexity*, 128.

[103] Snowden and Boone, "A Leader's Framework for Decision Making," 76.

[104] Ibid.

[105] Yonggang Liu et al., "Tracking the Deepwater Horizon Oil Spill: A Modeling Perspective," *Eos Trans. AGU* 92, no. 6 (2011): 45–52.

[106] Benjamin Snyder, "Tony Hayward's Greatest Hits," *CNN.Com*, June 10, 2010, http://money.cnn.com/2010/06/10/news/companies/tony_hayward_quotes.fortune/2010.

was "relatively tiny" compared to the "very big ocean."[107] In addition, he later told reporters, "We're sorry for the massive disruption it's caused their lives. There is no one who wants this over more than I do. I would like my life back."[108] In short, in the face of a complex crisis, Hayward viewed himself as a victim, he minimized the problem, and demonstrated self-pity.

Conversely, Admiral Thad Allen was tasked with serving as the National Incident Commander for the oil spill. In an interview with the *Harvard Business Review*, he was asked if he viewed the undertaking as a military operation. He commented that it was more complex than a military operation and that he needed a "whole of government response." Specifically, he stated, "You have to aggregate everybody's capabilities to achieve a single purpose, taking into account the fact that they have distinct authorities and responsibilities. That's creating *unity of effort* rather than *unity of command*, and it's a much more complex management challenge."[109] Later, he articulated the need for a "balcony view" when he said, "You have to understand at a very large, macro level what the problem is that you're dealing with and what needs to be done to achieve the effects you want—and you have to be able to communicate that. You also have to create a set of shared values that everybody involved can subscribe to." Allen experienced greater success because he employed a sensemaking skill from the outset of the scenario. He recognized the context of the situation; he used the resources available to him, and avoided the pitfall of "a general loss of nerve."

Sensemaking serves the adaptive leader well as the first step in leading through disequilibrium. However, it is through the *establishment of objectives* that conclusions resulting from sensemaking experience are effectively communicated.

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[107] Tim Webb, "BP Boss Admits Job on the Line Over Gulf Oil Spill," *The Guardian*, sec. 14, 2010.

[108] Snyder, *Tony Hayward's Greatest Hits*.

[109] Scott Berinato and Thad Allen, "You Have to Lead from Everywhere," *Harvard Business Review* 88, no. 11 (2010): 76–79.

C.   ESTABLISHING OBJECTIVES

Innovative, flexible, non-linear approaches to leadership may be the key to successfully navigating future crises, but foundational principles upon which all leaders must operate need to be applied if they hope to be adaptive leaders. The first is their role in establishing objectives. Daniel Mills purports that, "Without leadership a group of human beings quickly degenerates into argument and conflict, because we see things in different ways and lean toward different solutions. Leadership helps to point us in the same direction and harness our efforts jointly."[110] Moving in the same direction requires a director and a set of common goals and objectives.

As it relates to adaptive leadership, the principles of flexibility and versatility are not completely independent of constraints. A goal must exist toward which effort is invested and that goal needs to be set by someone. An adaptive leader is first a leader. A leader who hopes to mobilize followers must be clear about what the priorities are for the organization. Similar to the architectural principle that *form follows function*, an adage in organizational theory states, "structure follows strategy."[111] Decision making by the adaptive leader needs to be done with the most important objectives serving as the guiding principles.[112]

Leaders who seek to be adaptive need to focus their efforts on organizational priorities *prior* to crises and to practice correlating those to the highest priorities within the crises themselves. They need to hone the ability to disregard everything except what leads to accomplishing the goals. Lagadec laments, "Today we are dealing with leaders who, most often, no longer know how to clarify situations; who cannot identify the crux of an issue; who cannot define *priorities*—they always deal with *emergencies,* but have lost the ability to establish *priorities*."[113]

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[110] Daniel Quinn Mills, *Leadership: How to Lead, How to Live* (Waltham, MA: MindEdge Press, 2005), 11.

[111] Michael E. Raynor, *The Strategy Paradox: Why Committing to Success Leads to Failure (and What to Do About It)* (Random House Digital, Inc., 2007).

[112] Ibid.

[113] Lagadec, *Unconventional Crises, Unconventional Responses: Reforming Leadership in the Age of Catastrophic Crises and Hypercomplexity*, 126.

To the degree that adaptive leaders must establish the objectives that will unify and mobilize efforts, the leader must also be an effective communicator of those objectives. Policies, procedures and organizational charts will be of little help in a complex crisis if leaders fail to communicate effectively "what it is they are fighting for" and "what the endgame will look like."[114]

Hurricane Katrina serves as an example of how the lack of clear objectives, or the inability to communicate those objectives effectively, was a significant obstacle to effective emergency response. Establishing objectives is one of the core tenets of the National Incident Management System (created by the Federal Emergency Management Agency).[115] However, an after action review of Hurricane Katrina by the White House revealed an inability to do that very thing.[116]

In the end, objectives were identified, documented, and published in the form of the daily Incident Action Plan distributed to emergency responders.[117] However, in the time it took crisis leaders to overcome the obstacle, it had become a political nightmare. The American Dialect Society reported that the word "Katrinagate" was runner-up for the word that best defined 2005.[118] Establishing and communicating objectives early, matters.

D.   WHAT IS KNOWN

Adaptive leadership *recognizes complexity*, it seeks *resourceful solutions* and *reflects on their effects*. The complexity of contemporary crises amplifies the need for adaptive leadership. Adaptive leaders need to have the courage to accept they will be making decisions in an imperfect and poorly resourced situation. To the degree possible,

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[114] Lagadec, *Unconventional Crises, Unconventional Responses: Reforming Leadership in the Age of Catastrophic Crises and Hypercomplexity*, 107.

[115] Federal Emergency Management Agency, *National Incident Management System* (New York, NY: Federal Emergency Management Agency, 2011). 121.

[116] The White House, "Hurricane Katrina: Lessons Learned," accessed November 7, 2013, http://georgewbush-whitehouse.archives.gov/reports/katrina-lessons-learned/chapter5.html.

[117] Federal Emergency Management Agency, *Hurricane Katrina Incident Action Plan* (New York, NY: Federal Emergency Management Agency, 2005), 2.

[118] Heather Clark, "Linguists Vote 'Truthiness' Word of 2005," *ABC News*, January 6, 2006, http://web.archive.org/web/20060325135124/http://abcnews.go.com/US/wireStory?id=1480616.

they must *make sense* of the scenario as it is, and demonstrate a willingness to look for innovative solutions to unique circumstances. At its root, adaptive leadership requires the ability to *set objectives* and to communicate those effectively throughout the organization. That said, sensemaking and the setting of objectives is not enough. An adaptive leader needs to elicit and employ innovative and complex solutions. They need *alternative strategies*.

V.   ALTERNATIVE STRATEGIES

All great deeds and all great thoughts have ridiculous beginnings.

—Albert Camus

This chapter affirms the need for alternative strategies with a brief description of the strategy paradox. Two alternative strategies are proposed that comport with adaptive leadership, namely, distributed leadership and parallel processing.

A.   THE STRATEGY PARADOX

The premise of the strategy paradox is that the "strategies with the greatest possibility of success also have the greatest possibility of failure."[119] In his book, *The Strategy Paradox*, Michael Raynor theorizes that leaders make strategies to succeed based on what they believe the future holds. Any variation from their prognosticating calculations results in catastrophic failure. Little to no place exists for uncertainty or allowances made for adaptation to it. Leaders commit to a particular course of action in the belief they are mitigating risk through the commitment itself, but in reality, are forcing themselves into an all or nothing scenario.[120]

As its name indicates, an *alternative* strategy is one not considered a best practice, and as such, assumes some level of risk. However, the strategy paradox suggests that *risk* is the soil in which great ideas take root. Of note is Raynor's proposition regarding the *risk of no risk*. "The very traits we have come to identify as determinants of high achievement are also the ingredients of total collapse. And so it turns out that, behaviorally at least, the opposite of success is not failure, but mediocrity."[121]

Mediocrity, it seems, is the best-case scenario for maladaptive leaders (despite the best of intentions). Once victimized by a complex crisis, maladaptive leaders affirm the

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[119] Raynor, *The Strategy Paradox: Why Committing to Success Leads to Failure (and What to Do About It)*, 83.

[120] Ibid.

[121] Ibid.

"never again" vow and commit wholeheartedly to memorizing the newest edition of best practices. After 9/11, the U.S. government vowed never to be the victim of hijacked airliners. To that end, it created a new form of "best practices" through the formation of the Transportation Safety Administration (TSA). According to a congressional report, the original structure of the TSA would "provide the agency with the capacity to connect the dots between intelligence analysis and security performance."[122] While a lofty goal indeed, the same report listed a host of problems 10 years after its inception. First among the key findings was that the "TSA lacks administrative competency and is made inefficient by its massive bureaucracy." Additionally, it reported, "the status and mission of TSA have gradually eroded to make the agency a tangential and inert unit within DHS's massive structure."[123] The well-intentioned sense of "never again" as it relates to the safety of air travel did not translate into a preparation for uncertainty. The burgeoning federal agency (400 percent growth in 10 years)[124] does not appear to be in the business of institutionalizing risk-taking processes to prepare for the unknown.

Returning to Lesley Prince's comparison of Taoism and leadership, she writes, "To be free from convention is not to spurn it but not to be deceived by it. It is to be able to use it as an instrument rather than be used by it. This suggests that a willingness to step outside the rules may be an important feature of leadership."[125] Employing alternative strategies requires a shift in thinking and a change of organizational cultures. Rules and regulations serve an important purpose, but alternative strategies are needed that push standard operating procedures to their limits, or even beyond them. Many of the greatest leaders in military history were considered "incorrigibly eccentric."[126] Likewise, adaptive leadership may call for some shades of eccentricity.

Perhaps, the best way to summarize the strategy paradox's assertion about the need to embrace uncertainty is through the Albert Einstein quote, "If you do what you've

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[122] John L. Mica, "A Decade Later: A Call for TSA Reform," accessed February 7, 2014, http://trid.trb.org/view.aspx?id=1125593, 5.

[123] Ibid., 2.

[124] Ibid.

[125] Prince, "Eating the Menu Rather than the Dinner: Tao and Leadership," 119.

[126] Ibid.

always done, you'll get what you've always gotten."[127] Adaptive leaders want more than what they have gotten. They do not want to play the victim and search for new best practices. Therefore, on the heels of recognizing complexity (through sensemaking and establishing objectives), is the need to employ resourceful solutions. Just as Snowden's chef did not create a culinary masterpiece from nothing, thus, innovative solutions do not have to be imagined at the time of the crisis. Measures can be taken to provide the "ingredients" for successful leadership through disequilibrium. Adaptive leaders can stock the kitchen with processes that set them up for success. What follows are two such examples in distributed leadership and parallel processing.

B.   DISTRIBUTED LEADERSHIP

1.   General Principles

Distributed leadership is the antithesis to heroic leadership. It is a non-linear and decentralized method of looking at leadership that advances a healthier, more fully developed approach to decision making. In his book, *Distributed Leadership*, James Spillane writes, "I develop a distributed perspective on leadership as an alternative to accounts that equate leadership with the gallant acts of one or more leaders in an organization."[128] Distributed leadership is not about individual actions or calculative thinking, but a *culture* of leading developed within an organization. Spillane applies the principles to the educational field, "But a distributed perspective on leadership should first be just that—a perspective or lens for thinking about leadership before rushing to normative action. In this view, distributed leadership is not a blueprint for doing school leadership more effectively. It is a way to generate insights into how leadership can be practiced more or less effectively. A distributed perspective on leadership is best thought of as a framework for thinking about and analyzing leadership. It's a tool for helping us think about leadership in new and unfamiliar ways."[129]

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[127] Elijah Bartini, *Motivational, Inspirational and Success Quotes-to Get Motivated Every Day,* (LunaBulle, 2013).

[128] Spillane, *Distributed Leadership*.

[129] Ibid.

Thinking about leadership in new and unfamiliar ways is the hallmark of adaptive leadership. Distributed leadership, as a framework, is not simply the sharing of decision-making responsibilities among many people. While that may occur to some extent, it is only a piece of the distributed leadership model. That piece is sometimes referred to as the "leader-plus" method of leading. "A distributed perspective on leadership involves two aspects: the leader-plus aspect and the practice aspect. While the leader-plus aspect is vital, it is insufficient on its own. The leadership practice aspect moves the focus from aggregating the actions of individual leaders to the interactions among leaders, followers, and their situation."[130]

In opposition to the traditional method of identifying or developing mythical leadership attributes in individual leaders, the distributed leadership model focuses on the relationships among leaders and followers. It recognizes the needs of the top leaders and simultaneously values the strengths of line employees in an effort to leverage their interconnectedness to meet the demands of the crisis. It is an organic model that utilizes multiple methods of leading.

> People frequently use the terms collaborative leadership, shared leadership, co-leadership, democratic leadership, situational leadership, and distributed leadership interchangeably. Sometimes distributed leadership is discussed as though it were the same as or a type of transformational leadership. From my point of view, this is wrong; they are not synonyms. A distributed perspective on leadership is a relative, not a replica of these constructs or approaches. While collaborative leadership is by definition distributed, all distributed leadership is not necessarily collaborative. Indeed, a distributed perspective allows for leadership that can be more collaborative or less collaborative, depending on the situation.[131]

2.   Partnerships

While distributed leadership is not synonymous with collaborative, shared, or democratic forms of leadership, one thing is certain—the core of distributed leadership in crisis is the effective use of partnerships. Osborn, Hunt, and Jauch note, "examining

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[130] Spillane, *Distributed Leadership*.

[131] Ibid.

leadership at the edge of chaos moves the analysis from studying the combined impact of context and leadership on performance to examining the co-evolutionary dynamics among the environment of the firm, its viability in the setting and its collective leadership."[132]

Interestingly, adaptive leaders may find that they increase their ability to lead effectively through the *greater* use of partnerships. Becoming less territorial and more intentionally cooperative may facilitate creative solutions and increase a base of power from which crises may be overcome. Innes and Booher articulate the benefits of partnerships in their book, *Planning with Complexity: An Introduction to Collaborative Rationality for Public Policy*.

> These collaborative efforts can and often do produce significant agreements. These agreements may be the least of the consequences, however, as the processes themselves build capacity for self-management in communities, improve policy knowledge, and create innovative strategies tailor-made to the unique conditions of particular situations. They can transform intractable problems into tractable ones as participants come to see in new ways and develop new values and goals and a sense of common purpose. They build social, political and intellectual capital that can be used not only for the immediate problem, but for much more over time. They can empower previously invisible players, giving them a place at the table for the first time. They are a key part of the phenomenon of governance, which has gained attention in recent years as increasingly hierarchical government is supplemented by the activities of a shifting panoply of players linked to one another through networks.[133]

Osborn, Hunt, and Jauch term this newly forming method of coordination "collaborative rationality."[134] It is a method of making sense, making plans, and making decisions by intentionally attributing value to all the parties involved, regardless of their organizational base of power.[135] While it may fly in the face of conventional thinking, diversity can be a strength even in the throes of a complex crisis. Unique crises call for

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[132] Richard N. Osborn, James G. Hunt, and Lawrence R. Jauch, "Toward a Contextual Theory of Leadership," *The Leadership Quarterly* 13, no. 6 (2002): 823.

[133] Innes and Booher, *Planning with Complexity: An Introduction to Collaborative Rationality for Public Policy*, 7.

[134] Osborn, Hunt, and Jauch, "Toward a Contextual Theory of Leadership," 797–837.

[135] Ibid.

creative solutions. "During times of uncertainty, leaders must enlist a diverse group of highly skilled people but ask them to leave behind preconceived notions and prepackaged solutions. Those specialists need to understand that no matter how experienced they might be, they have never before faced the challenge at hand. The group needs to explore, experiment, and invent together, and to integrate deep knowledge and ideas—not just apply them. People have to work in fluid, shifting arrangements, rotating in and out of teams as the demands of the situation evolve."[136]

The diversity of a group that needs to "explore, experiment, and invent together" to solve complex crises should include participants at many levels of leadership. A distributed leadership method of employing adaptive leadership principles is not to create partnerships exclusively with other executives. A healthy cadre of partnerships includes a vertical aspect in addition to a horizontal one. After all, no one can predict from where the best combination of answers will come. Berkes recognizes that establishing partnerships may be out of the ordinary. He writes, "The creation of governance systems with multilevel partnerships is a fundamental shift from the usual top–down approach to management. It responds to the need for building resilience by using cross-scale thinking and partnerships."[137] Osborn, Hung and Jauch corroborate the premise, "We are suggesting that order, cohesion and viability may emerge from the middle and bottom. Rather than just focusing on top management and its choices, at the edge of chaos one must look at the whole system and its leadership."[138]

The recipe for success in such a heterogeneous group is the application of what Spillane calls "heedfulness." He explains that in settings committed to distributed leadership, everyone treats the others heedfully when they act "carefully, intelligently,

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[136] Faaiza Rashid, Amy C. Edmondson, and Herman B. Leonard, "Leadership Lessons from the Chilean Mine Rescue," *Harvard Business Review* 91, no. 7 (2013): 116.

[137] Berkes, "Understanding Uncertainty and Reducing Vulnerability: Lessons from Resilience Thinking," 291.

[138] Osborn, Hunt, and Jauch, "Toward a Contextual Theory of Leadership," 823.

purposefully, and attentively."[139] He asserts that the greater amount of heedfulness demonstrated within the group, the "more capable the group is of intelligent practice."[140]

The response to the 2011 Joplin, Missouri tornado is an example of the effective use of partnerships. The mile-wide tornado killed 158 people, injured some 1,150 others, and caused $2.8 billion in damage.[141] The response included federal, state, and local emergency management professionals in addition to numerous non-governmental organizations and volunteer groups. Collaboration had been established prior to the crisis through "exercises, training, and other preparedness activities that built regional resources and capacity."[142] While many disasters necessitate a high level of cooperation among these groups, Missouri experienced greater success because it leveraged regional partnerships that had been established in advance. The State of Missouri was able to recover more effectively using regional assets in lieu of relying on the federal government to take over the management of its crisis.

An after action report by the Federal Emergency Management Agency noted, "The Whole Community response to the Joplin tornado was built upon the preparedness structures and activities that Joplin, Jasper County, and its regional partners had spent years constructing. Had the region, along with the State and FEMA, not made these investments, the response to the tornado would not have achieved this degree of effectiveness."[143]

3.   Leader Interaction

Partnerships are about getting the right people together and creating an environment in which each is encouraged to contribute. However, another aspect of distributed leadership exists that is, perhaps, more art than science. Distributed leadership

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[139] Spillane, *Distributed Leadership*.

[140] Ibid.

[141] United States Department of Commerce, *NWS Central Region Service Assessment Joplin, Missouri, Tornado—May 22, 2011* (Washington, DC: Department of Commerce, 2011).

[142] Federal Emergency Management Agency, *The Response to the 2011 Joplin, Missouri, Tornado Lessons Learned Study* (New York, NY: Federal Emergency Management Agency, 2011).

[143] Ibid.

gives credence to the *betweenness* of leaders in addition to individual contributions. Spillane notes, "Thinking about leadership in terms of interactions rather than actions offers a distinctly different perspective on leadership practice. Actions are still important, but they must be understood as part of interactions."[144]

In *Leadership and the New Science: Discovering Order in a Chaotic World*, Wheatley expresses her personal feelings about the importance of a focus on interactions. She writes, "It is hard to open ourselves to a world of inherent orderliness. In life, the issue is not control, but dynamic connectedness. I want to act from that knowledge. I want to trust in this universe so much that I give up playing God. I want to stop struggling to hold things together. I want to experience such security that the concept of 'allowing'—trusting that the appropriate forms will emerge—ceases to be scary. I want to surrender my fear of the universe and join with everyone I know in an organization that opens willingly to its environment, participating gracefully in the unfolding dance of order."[145]

The concepts expressed by Wheatley are congruent with those of distributed leadership. She describes her desire to abandon a rigid sense of control to gain real order through interconnectedness.

Interconnectedness acknowledges the organic nature of relationships among leaders. "What a leader does influences and in turn is influenced by other leaders. In this situation, leadership practice is a system of interacting practices that is more than the sum of the actions of individual leaders. A distributed perspective involves examining how leadership practice takes shape in the interactions among the practices of these leaders. Leadership is a system of practice made up of a collection of interacting component parts in relationships of interdependence in which the group has distinct properties over and above the individuals who make it up."[146] From a distributed leadership approach, leaders examine their decisions in light of how it will affect others. Ideally, they will have

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[144] Spillane, *Distributed Leadership*.

[145] Wheatley, *Leadership and the New Science: Discovering Order in a Chaotic World*, 25.

[146] Spillane, *Distributed Leadership*.

had an eye for the complexity of those relationships prior to the handling of a crisis. The solutions, in such a case, are increasingly mindful (or heedful) of their effect on others.

The Yarnell Hill (Arizona) wildfire serves as an example of the importance of the leader-interaction dynamic. On June 30, 2013, the fire took an unexpected turn that claimed the lives of 19 firefighters. The resulting crisis had many complicating factors.

- It was one of the largest firefighting tragedies in U.S. history
- The decimated 20-man hotshot crew consisted of members from small, local communities
- The main memorial service included numerous dignitaries, such as Vice President Joe Biden, Arizona Governor Jan Brewer, and many others
- Nineteen additional, individual, local memorial arrangements were necessary
- Fire, emergency medical services (EMS) and law enforcement from dozens of agencies were needed to assist with everything from ongoing, routine calls for service to the transport of victims' bodies to the management of enormous requests for public information
- The wildfire was still burning[147]

In this situation, having the right leaders together was only the first step in ameliorating the crisis. It called for an exceedingly high level of cooperation and sensitivity. Who was chosen to make what decisions at what time became as important as the decisions themselves. Leaders at all levels wanted to make a valuable contribution to the effort, but a significant ripple effect affected each decision. The most pedestrian decision could not be made without having an impact on another decision maker. The network of leaders, logistics, and emotion confined to a relatively small space was the recipe for a complex crisis. Key to any success was being adaptive, while maintaining a keen awareness of how each leader connected and interacted with the others.

In the article, "Toward a Contextual Theory of Leadership," the authors articulate the danger of leaders *circling the wagons* during crises. "At the edge of chaos, the more tightly constrained the direct linkages within the corporate elite and the more tightly constrained the direct linkages with and across the firm's inter-organizational field (a) the

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[147] Arizona State Forestry Division, "Yarnell Hill Fire," accessed December 2, 2013, http://www.inciweb.org/incident/3461/.

lower the firm's impact on its inter-organizational field and (b) the more likely the firm will experience repeated unanticipated negative and increasingly dire consequences in attempts to alter its positioning within the environment."[148] In other words, the more focused leaders at the top are on their own survival, the more they diminish their ability to effect positive change, and the greater the likelihood of experiencing a catastrophic result.

People may be tempted to think that a step toward distributed leadership is a step toward cowardice, or that loosening their grip on control is a display of weakness. The endemic need to exercise heroic leadership runs deep, but an emphasis on inclusion, interconnectedness, and trust weaves a web that actually doubles as a safety net. In *Leadership and Organizing: Sensemaking in Action*, Annie Pye writes, "This draws attention to what occurs *between* people rather than on heroes or stars. 'Not every chief executive feels the urge to sing, conduct the band and play the drums. Many of our respondents were reported to adopt a somewhat more androgynous approach involving immediate colleagues in discussions and decisions not only because it appeared to them impossible to do otherwise, but also because they appeared to be convinced that sharing secures better decisions and even greater effort from those with whom one shares influence."[149]

No single, prescriptive method of incorporating distributed leadership exists. It acknowledges different forms of leading and incorporates diverse relationships. It uses various methods of collaboration in an effort to identify innovative solutions to crises. Spillane describes a number of these cooperative variables using sports analogies.

> Analyzing interactions among leaders in the co-performance of leadership practice, my colleagues and I have identified three types of distribution: Collaborated distribution characterizes leadership practice that is stretched over the work of two or more leaders who work together in place and time to execute the same leadership routine, such as facilitating a faculty meeting. The co-practice in this situation is similar to that in basketball, in which players must interact with one another, passing to teammates when they stop dribbling and working to set one another up to shoot. Collective

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[148] Osborn, Hunt, and Jauch, "Toward a Contextual Theory of Leadership," 827.

[149] Pye, "Leadership and Organizing: Sensemaking in Action," *Leadership*, 36.

distribution characterizes practice that is stretched over the work of two or more leaders who enact a leadership routine by working separately but interdependently. The interdependencies are akin to those in baseball or cricket, in which players at bat perform alone, but their actions in interaction with that of the pitcher or bowler collectively produce the practice. Coordinated distribution refers to leadership routines that involve activities that have to be performed in a particular sequence. The interdependency in this situation is similar to that in a relay race in track; the co-performance of the relay race depends on a particular ordered sequence. These three types of distribution are not mutually exclusive; a single leadership routine could involve more than one type.[150]

The fusion of these three types of distributive leadership can be seen in the preparation and response to the Boston Marathon Bombings. On April 15, 2013, two bombs made out of pressure cookers exploded near the finish line of the Boston Marathon killing three and injuring nearly 270. Approximately 26,000 participants had either completed the race or were still running in addition to all of the bystanders. Due to the scale of the incident, a massive coordinated response by local, state and federal emergency personnel resulted.[151]

A "Lessons Learned" publication by the Federal Emergency Management Agency reveals the three models of leadership in action. The greater Boston area and Massachusetts exercised together multiple times prior to the event. They demonstrated *collaborated distribution* by co-practicing the response to a "complex terrorist attack" that included participants from "law enforcement, fire, EMS, communication centers, private sector communities, and non-governmental organizations."[152] Advanced interoperability efforts made *collective distribution* possible. WebEOC was cited as "the most effective tool during the Boston Marathon bombings to acquire and communicate important data concerning critical needs and resources."[153] The cyber tool, in addition to previously established relationships among all of the involved leaders, facilitated the successful interdependent response. Lastly, *coordinated distribution* occurred when the

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[150] Spillane, *Distributed Leadership*.

[151] Federal Emergency Management Agency, *Boston Marathon Bombings: The Positive Effect of Planning and Preparation on Response* (New York, NY: Federal Emergency Management Agency, 2013).

[152] Ibid.

[153] Ibid.

National Weather Service changed its mission from weather forecasting to the evaluation of air quality. Leaders operated in an ordered sequence as they waited for National Weather Service staff to "determine whether the explosions contained toxins or hazardous chemicals."[154]

Leaders in the numerous disciplines involved in the preparation and response to the event probably did not discuss the fact that they had been, and were participating in, various forms of collaborated, collective, or coordinated distribution of leadership. However, the ground that was laid through partnerships and leader interaction facilitated their ability to respond appropriately to a complex crisis. What started as the 117th edition of a marathon, transitioned to substantial disequilibrium, and then returned to a complicated, but manageable event.

The Joplin tornado, the Yarnell Hill fire, and the Boston Marathon bombings, serve as examples of how, in a complex crisis, no single, prescriptive form of distributed leadership will suit every need. Complex crises call for adaptive leadership capable of employing various distributed leadership methods. They call for complexity in leading.

Complexity in leading can be aided with tools. *Parallel processing* is one of them.

C.   PARALLEL PROCESSING

1.   Uncertainty

Parallel processing is, as its name implies, the act of simultaneously examining multiple methods of solving a problem. Where distributed leadership is about involving the right <u>people</u>, parallel processing is about providing the right <u>opportunities</u>.

Consistent with adaptive leadership principles, parallel processing is based on the assumption that better (more innovative/creative) solutions to crises may be available if leadership facilitates the occasion for their identification. The first step in that facilitation process is leadership's acknowledgement of the unknown.

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[154] Federal Emergency Management Agency, *Boston Marathon Bombings: The Positive Effect of Planning and Preparation on Response*.

In *The Strategy Paradox*, Raynor writes, "What is new is that here uncertainty is not an afterthought, not something one considers after commitments have been made. Instead, uncertainty is placed at the core of decision making at the highest levels of the organization, for only in this way can we hope to address the paradox created by uncertainty."[155] This undertaking is no small task, as acknowledging uncertainty during crises requires leaders to concede they do not have all the answers, and at the same time, take action in an unpredictable direction. Raynor continues, "The strategy paradox arises from the need to commit in the face of unavoidable uncertainty."[156]

If innovative behavior is going to emerge out of crises, it will require the support of top management.[157] That support can be demonstrated by providing space for alternative solutions, by parallel processing. Adaptive leaders can move beyond the acknowledgement of uncertainty, and actually accommodate it by giving stakeholders a place to "behave symmetrically in some situations and asymmetrically in others."[158]

2. Options

Creating space for innovation means institutionalizing a culture of *options* thinking. "Doing so, indeed, can 'turn the tables' on unconventional crises. While they thrive on an organization's blind zones, the organization can return the favor by also exploiting *the blind zones of crisis*, which always exist if one would only look for them."[159] Raynor asserts that organizations should maintain a "portfolio" of strategic options.[160] An example of inculcating an *options-thinking* culture in private business is the Microsoft Corporation.

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[155] Raynor, *The Strategy Paradox: Why Committing to Success Leads to Failure (and What to Do About It)*.

[156] Ibid.

[157] Nancy Casper, "Organizational Leadership's Impact on Emergent Behavior during Disaster Response and Recovery Operations" (master's thesis, Naval Postgraduate School, 2011).

[158] Bolton and Stolcis, "Overcoming Failure of Imagination in Crisis Management: The Complex Adaptive System," 3.

[159] Lagadec, "Unconventional Crises, Unconventional Responses: Reforming Leadership in the Age of Catastrophic Crises and Hypercomplexity," 107.

[160] Raynor, *The Strategy Paradox: Why Committing to Success Leads to Failure (and What to Do About It)*.

It is clear that people and organizations can adapt effectively. Consider, for example, Microsoft's oft-cited and well-regarded response to the rise of the Internet. In the mid-1990s, Microsoft's product suite was based on stand-alone personal computers with perhaps peripheral connections to company networks. As a result, Microsoft's strategy was built on the notion of islands of productivity. The rise of the Internet as a transforming technology in personal computing resulted in a remarkable transformation that served to "Internet-enable" many of Microsoft's key products: the islands in the archipelago had become bone fide nodes in a global network. Encapsulated in the now-famous mantra "embrace and extend," Microsoft did not fight the Internet or even resist it. In classic judo fashion, the company redirected the power of this new technology to its benefit.[161]

3.   Parallel Processing in Action

The key to employing the alternative strategy of parallel processing is to mobilize it early in the crisis. As standard response measures are put into action, a team of disparate creative thinkers should be assembled with the instruction to *think differently* about solutions to the crisis. In "A Leader's Framework for Decision Making," Snowden and Boone write, "The minute you encounter a crisis, appoint a reliable manager or crisis management team to resolve the issue. At the same time, pick out a separate team and focus its members on the opportunities for doing things differently. If you wait until the crisis is over, the chance will be gone."[162]

An example of parallel processing in action is the Chilean mine accident of August 2010. Thirty-three miners were trapped for 69 days in a collapsed copper and gold mine 2,300 feet underground. Many technical, complicating factors made the rescue effort nearly impossible. What resulted, however, was a commitment to parallel processing. Witnesses to the crisis write, "Later, the rescue operation would similarly pursue multiple solutions at once, employing three different drilling systems—Plans A, B, and C—in parallel."[163]

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[161] Raynor, *The Strategy Paradox: Why Committing to Success Leads to Failure (and What to Do About It)*.

[162] Snowden and Boone, "A Leader's Framework for Decision Making," 75.

[163] Rashid, Edmondson, and Leonard, *Leadership Lessons from the Chilean Mine Rescue*, 116.

This situation reflects parallel processing in action, three individual plans simultaneously formulated by three separate teams of experts utilizing different technologies. Moreover, as the drilling plans progressed, they began to look at the phases of the rescue that would be best suited by the contrasting plans. "It also allowed the rescue operation to divide its forces, freeing some to focus on the more difficult second phase even while the first was under way. This parallel processing, which became a hallmark of the operation, is actually a requirement for success in chaotic environments."[164]

Reflecting on the Chilean Mine event, the *Harvard Business Review* produced a graphic (see Figure 2) that illustrates the processes that should occur in parallel during complex crises. As displayed, they have divided the two processes between the headings "direct" and "enable."
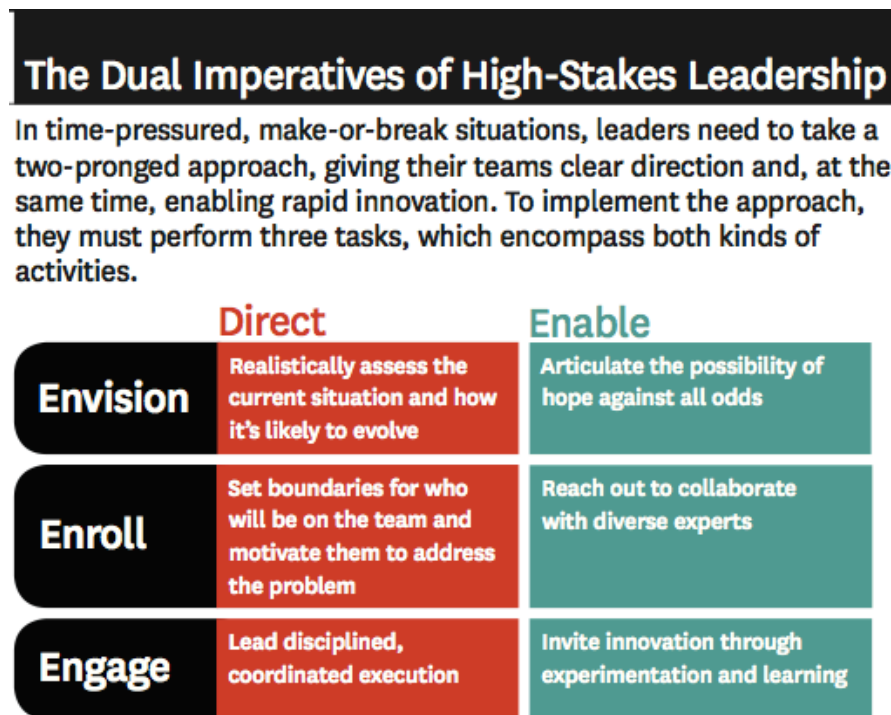

The Dual Imperatives of High-Stakes Leadership

In time-pressured, make-or-break situations, leaders need to take a two-pronged approach, giving their teams clear direction and, at the same time, enabling rapid innovation. To implement the approach, they must perform three tasks, which encompass both kinds of activities.

	Direct	Enable
Envision	Realistically assess the current situation and how it's likely to evolve	Articulate the possibility of hope against all odds
Enroll	Set boundaries for who will be on the team and motivate them to address the problem	Reach out to collaborate with diverse experts
Engage	Lead disciplined, coordinated execution	Invite innovation through experimentation and learning

Figure 2.   Processes that should occur in parallel during complex crises[165]

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[164] Rashid, Edmondson, and Leonard, *Leadership Lessons from the Chilean Mine Rescue*, 116.

[165] Ibid., 117.

4. Reflecting in Action

Important to the success of parallel processing is the ability of crisis leaders to consider where they have been as frequently as where they are going. Asking, "What if we had done it differently?" may pioneer a new direction forward. "In emerging crises, agent-managers need to be able to quickly develop and utilize emergent strategies that allow them to…' reflect in action.'"[166] The principle of *reflecting in action* was utilized in the Chilean mine rescue. Those leaders continued to push the work on while searching for new solutions. They "acted quickly and yet took time to reflect."[167]

In France, an organization has formalized this process through the creation of a "Rapid Reflection Force." The *Crisis Response Journal* suggested this form of parallel processing in 2006, and Électricité de France, a nuclear power plant, put it to use.[168] Using a diverse group of experts, it created an on-call team responsible for thinking holistically and creatively about solutions to active crises. While initially it was successfully used in simulations, it gained legitimacy when employed for a number of crises that ranged from a rash of employee suicides to hurricane-damaged infrastructure.[169]

The Rapid Reflection Force creates opportunities for organizations to address crises for which no toolkit is at the ready, it is a "discovery process."[170] Authors of a *Crisis Response Journal* article note that, for the Électricité de France, the Rapid Reflection Force, "lays the groundwork for a new culture, new operational 'grammars,' and—last but not least—new networking capabilities when the name of the game is partnership, collective innovation and resilience."[171]

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[166] Bolton and Stolcis, *Overcoming Failure of Imagination in Crisis Management: The Complex Adaptive System*, 9.

[167] Rashid, Edmondson, and Leonard, *Leadership Lessons from the Chilean Mine Rescue*, 114.

[168] Lagadec, Guilhou, and Béroux, "Rapid Reflection Forces Put to the Reality Test," *Crisis Response Journal*, 38–40.

[169] Ibid.

[170] Lagadec and Topper, "How Crises Model the Modern World," 40.

[171] Lagadec, Guilhou and Béroux, *Rapid Reflection Forces Put to the Reality Test*, 38.

5. What Is Known

Therefore, the use of alternative strategies is an exercise of complexity itself. The Strategy Paradox illustrates the need to exercise risk if it is hoped to see greater success in leading through complex crises. In the search for alternative solutions, adaptive leaders need to find ways to prepare for, or even embrace, uncertainty. Doing that requires looking at leadership in new and unfamiliar ways. It requires leaders to become less territorial and to make use of "cross-scale thinking" that links leaders in a networking fashion. Adaptive leaders recognize that order may emerge not only from the top-down, but also from bottom-up or middle-out.

Adaptive leadership looks for opportunities to exercise new ideas and adopts "options-thinking." Making a habit of this type of thinking about leadership is transformative. It is adaptive. It is complex.

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VI.   FINDINGS

Innovation is taking two things that already exist and putting them together in a new way.

—Tom Freston

The research found that indeed, all homeland security crises are not created equal. There is a kind of crisis that is exponentially more difficult to prepare for and lead through, and is distinct by more than just the scale of the event. They have characteristics similar to those found in complex systems, such as large-scale networking, leaderless networks, and adaptation. These crises are hard to predict and they can sometimes be perpetrated by a relatively small number of criminals relative to the amount of destruction they impose.

The study found that the modern world presents *opportunities* for increased complexity in crises not possible as recently as 20 years ago. Events, such as 9/11, and the Mumbai terrorist attack, are just two examples of how publicly available, present-day technologies, such as satellite phones, Google Earth, GPS devices, social media, and the Internet, were combined in a creative way to exact reprehensible consequences.

As to the "nature" of contemporary crises, the research did not definitively find that it had changed. Nothing indicated that bad people are worse today than in the past or that their evil intent has changed over time. Likewise, it would appear that the good people of today do as much as any ever have in their attempts to combat evil. To the extent that the "nature" of a crisis refers to its essence, the research was unable to draw a concrete conclusion. Even a highly complex, or even "wicked" crisis, may not be different *in nature* so much as it adds complications that increase unpredictability and result in greater consequence. In short, the research is unable to determine if today's crises have a different DNA than those of previous generations.

Having found that some contemporary crises are exponentially more complex, the research investigated opportunities for adaptation on the part of homeland security leaders. It revealed that some homeland security leaders are, in fact, playing by an

obsolete set of rules. They demonstrate forms of maladaptive leadership through the exercise of heroic leadership and an overreliance on best practices.

That said, the study found that, in fact, opportunities for adaptation do exist. While they may not be in common use among homeland security leaders, adaptation to complex crisis does exist through a number of alternative strategies. Specifically, the research identified the place for distributed leadership and parallel processing. A form of distributed leadership was successfully used in the Joplin, Missouri tornado, and the Yarnell Hill wildfire, in Arizona. Parallel processing was seen as a success for crises involving a French nuclear power plant and in the Chilean mine rescue.

A. LIMITATIONS

The most significant limitation of the study is the scope of the research. It was not possible to examine every, or perhaps even most, of the methods of leadership that exist in homeland security. Identifying a single definition for leadership is a thesis of its own, let alone a comprehensive investigation into every style of homeland security leadership as practiced today. The examination relied heavily on scholarly research; however, because of the limited scope, the study was guided by a mixture of the writer's experience in leading, in having been led, and in observing numerous leadership styles. Obviously, the author is finite, and as such, has limitations to his experience. The limitation in scope does not diminish the validity of the findings, but it does point to the fact that dozens of undiscovered strategies for adaptation for homeland security leaders are likely to exist.

B. RECOMMENDATIONS

Based on the results of the study, several recommendations for future research are made.

- A place to investigate in greater detail the styles of leadership in homeland security that currently exist, in an effort to discover those that are adapting in real time during legitimate, complex crises.

- A need exists to identify, codify, and promulgate more alternative strategies (i.e., find more tools for the toolbox). Dedicating time to the research of innovative solutions used in disciplines other than homeland security would be a worthwhile pursuit.

- A gap exists between the identification of alternative strategies and their implementation. The author recommends research into the creation of effective implementation strategies that consider the solutions themselves and the way in which they could be tailored to individual homeland security disciplines.

C.   CONCLUSION

Three major conclusions can be made from this study. The first conclusion is the *recognition* that opportunities exist for complexity in crises unique to contemporary society. As noted in the limitations, this study does not attempt to quantify the number of homeland security leaders who fail to recognize that crises can be different based solely on the fact that they occur today and not 25 years ago. While no percentage points to the pervasiveness of the problem, the research, along with common sense and frequent observation, demonstrate that the ways in which homeland security leaders currently lead do not demonstrate a healthy understanding of the potential for increased complexity.

There are implications to homeland security leaders that fail to recognize the potential for complexity in modern crises. If it is assumed that the homeland security leaders of today have 20 or more years on the job, then the "highly successful" leadership methods observed throughout their career are now outmoded. They suffer from a longer-term form of an *overreliance on best practices*. They are exercising today what worked in the past with an insufficient regard for what the future may hold. In this scenario, as with a crisis from any age, the adage "a failure to plan is a plan to fail" is apropos. A failure to plan for uncertainty is quite possibly a fatal flaw to the superlative degree.

The second conclusion is that opportunities for complexity are not limited to crises. Occasions for complexity in leading do exist. Having recognized the potential for crisis complexity, homeland security leaders need to pursue *resourceful solutions*. The research uncovered alternative strategies that could be leveraged against crises. The strategies are incapable of preventing complex crises, but they may hold the key to mitigating   their   consequences   and   increasing   the   nation's   resilience.   An

acknowledgement of crisis complexity potential should motivate homeland security leaders to prepare for uncertainty in innovative ways. It should drive them to recruit new ideas and implement new processes that recognize the potential for complexity in crises.

It is not possible to know with certainty what effects a renewed attitude about crises would have. The alternative strategies suggested in the research in distributed leadership and parallel processing point to the fact that some successes may be referenced. The degree to which more successes may be experienced appears to be limited only by the innovative resolve of homeland security leaders.

The research did not set out to investigate the third conclusion, but it arose out of the process of the inquisition that an essential place for *reflection* in the process of preparing for and leading through complex crises exists. The study jumped into the pool of complexity with both feet. It also assumed, and found, that a body of literature addressed the concepts of maladaptive leadership. However, the importance of reflection percolated to the top with some consistency. The idea of evaluating progress is only one facet of the concept. *Reflection* seemed to present the idea that homeland security leaders need to take time to be more introspective about their place in leading in the contemporary world. Opportunities for complexity have changed the game, quite literally in front of their eyes. The need for creativity and the courage to seek for innovation is an integral part of addressing those concerns. However, for homeland security leaders to acknowledge that some of their professional upbringing may be irrelevant, and that others may have better ideas about leading in certain circumstances, is humbling.

An element of reflection is necessary before taking on the challenge of acknowledging and preparing for complex crises, as well as the need for ongoing reflection as innovative solutions are sought and implemented. It is quite possible that the most complex piece of the equation is not the crisis, but homeland security leaders themselves. Every reason exists to believe that the opportunities for complexity in crises will only increase over time. However, with the appropriate attitude about crises and about themselves, homeland security leaders have the potential to get ahead of the next complex crisis by preparing to lead adaptively. They have the potential to fight complexity with complexity.

Meanwhile, Back at Highlake …

Chief Jacobson grabs a piece of paper and hastily begins to scratch down general problem areas:

- Hazardous materials response (how bad is this stuff?)
- YouTube/social media (who controls this? can we turn it off?)
- Hate groups (are the Sovereign Knights legit? do we have any names?)
- School response (are children already exposed?)
- Restaurant response (is food already contaminated?)
- Thousands of visitors (do I try to stop them?)

For a moment, the chief's head begins to spin and he feels his heart palpitate. He watches as people hurriedly file into the emergency operations center and look expectantly at him for answers, for guidance, for leadership.

Within seconds, they break their gaze, remembering that they have planned for such a time as this, and spring into action. Not that anyone had experienced this situation before—binders with corresponding checklists or notes from tabletop exercises that involved this particular culmination of threats did not exist. However, what they have done is prepare for uncertainty.

Chief Jacobson faces a whiteboard and prominently begins to write objectives:

- Ensure the safety of citizens and first responders
- Control source of hazmat
- Manage the coordinated response, etc.

Initial ICS assignments complete, Chief Jacobson recognizes that this crisis demands logistical, physical, and expert resources he did not have within his police department. Determined not to play the victim, he recognizes his need for innovation, flexibility, and out-of-the-box thinking.

As he considers the disparate pieces of the complex puzzle, the chief begins to remember the faces and names of people with whom he had discussed the idea of adaptive response to complex crises. He recalls relationships he had forged at all levels within the police department, members of the business community, media personnel,

school officials, local politicians, and many others. He requests their response, and by name, forms customized expert panels.

Chief Jacobson identifies two individual workspaces separate from the emergency operations center and assigns an assistant chief to each space. Consistent with previous discussions about adaptive leadership, the assistant chiefs are not surprised when they are tasked with leading diverse groups of experts with the goal of creative problem solving. Within minutes, the room is abuzz with inventive exchanges.

As incident commander, Chief Jacobson balances his role of piloting the standard response to the crisis while remaining in contact with his assistant chiefs. He probes the crisis in search of opportunities to employ their innovative solutions where appropriate, he evaluates the impact of each decision, and provides feedback to everyone involved.

- What results is an unusual amalgamation of processes, ideas, and ultimately, solutions.
- What results are a complex answers to a complex crisis.
- What results is adaptive leadership—fighting complexity with complexity.

LIST OF REFERENCES

Arizona State Forestry Division. "Yarnell Hill Fire." Accessed December 2, 2013.
    http://www.inciweb.org/incident/3461/.

Arquilla, John, and David Ronfeldt. *Swarming and the Future of Conflict*, No.
    RAND/D8-311-OSD. Santa Monica, CA: RAND Corporation, 2000.

Barabasi, Albert-Laszlo. *Linked: How Everything is Connected to Everything Else and
    What It Means*. New York, NY: Plume, 2003.

Baran, Paul. "On Distributed Communications Networks." *IEEE Transactions on
    Communications Systems* 12, no. 1 (1964): 1–9.

Bartini Elijah. *Motivational, Inspirational and Success Quotes-to Get Motivated Every
    Day*. LunaBulle, 2013.

Benkler, Yochai. "Free Irresponsible Press: Wikileaks and the Battle Over the Soul of the
    Networked Fourth Estate." 46 *Harv.CR-CLL Rev.* 311 (2011): 316.

Berinato, Scott, and Thad Allen. "You Have to Lead from Everywhere." *Harvard
    Business Review* 88, no. 11 (2010): 76–79.

Berkes, Fikret. "Understanding Uncertainty and Reducing Vulnerability: Lessons from
    Resilience Thinking." *Natural Hazards* 41, no. 2 (2007): 283–295.

Boin, Arjen. *The Politics of Crisis Management: Public Leadership Under Pressure*.
    Cambridge, UK: Cambridge University Press, 2005.

Bolton, Michael J., and Gregory B. Stolcis. "Overcoming Failure of Imagination in Crisis
    Management: The Complex Adaptive System." *The Innovation Journal: The
    Public Sector Innovation Journal* 13, no. 3 (2008): 1–12.

Byman, Daniel. "Should Hezbollah Be Next?" *Foreign Affairs*, 2003.

Chapman, Cameron. "The History of the Internet in a Nutshell." November 15, 2009.
    http://sixrevisions.com/resources/the-history-of-the-Internet-in-a-nutshell/.

Clark, Heather. "Linguists Vote 'Truthiness' Word of 2005." *ABC News*. January 6,
    2006. http://web.archive.org/web/20060325135124/http://abcnews.go.com/
    US/wireStory?id=1480616.

Comfort, Louise K. "Managing Intergovernmental Responses to Terrorism and Other
    Extreme Events." *Publius: The Journal of Federalism* 32, no. 4 (2002): 29–50.

Department of Defense. *Quadrennial Defense Review*. Washington, DC: Department of Defense, 2010.

Dooley, Kevin J. "A Complex Adaptive Systems Model of Organization Change." *Nonlinear Dynamics, Psychology, and Life Sciences* 1, no. 1 (1997): 69–97.

Fayol, Henri, Frederick W. Taylor, and Peter F. Drucker. "Management and Decision-Making in Organizations." Accessed February 7, 2014. http://www.corwin.com/upm-data/15500_Chapter_3.pdf.

Federal Emergency Management Agency. *Hurricane Katrina Incident Action Plan*. New York, NY: Federal Emergency Management Agency, 2005.

———. *National Incident Management System*. New York, NY: Federal Emergency Management Agency, 2011.

———. *The Response to the 2011 Joplin, Missouri, Tornado Lessons Learned Study*. New York, NY: Federal Emergency Management Agency, 2011.

Field, Andrew J. *Mainliner Denver: The Bombing of Flight 629*. Boulder, CO: Big Earth Publishing, 2005.

Franks, Nigel R. "Army Ants: A Collective Intelligence." *American Scientist* 77 (1989): 138–145.

Gage, Beverly. *The Day Wall Street Exploded: A Story of America in its First Age of Terror.* Oxford, UK: Oxford University Press, 2008.

Harper, Douglas. "Online Etymology Dictionary." Accessed July 29, 2013. http://www.etymonline.com/index.php?term=complex.

Heidegger, Martin. *Discourse on Thinking*. New York, NY: HarperCollins, 1969.

Heifetz, Ronald Abadian, Alexander Grashow, and Martin Linsky. *The Practice of Adaptive Leadership: Tools and Tactics for Changing Your Organization and the World*. Boston, MA: Harvard Business Press, 2009.

Hofstadter, Douglas. *Gödel, Escher, Bach: An Eternal Golden Braid*. New York: Penguin Books, Book Club Edition, 1979.

Hölldobler, Bert, and Edward Osborne Wilson. *The Superorganism: The Beauty, Elegance, and Strangeness of Insect Societies*. New York, NY: WW Norton & Company, 2009.

Holling, Crawford S. "Understanding the Complexity of Economic, Ecological, and Social Systems." *Ecosystems* 4, no. 5 (2001): 390–405.

Innes, Judith E., and David E. Booher. *Planning with Complexity: An Introduction to Collaborative Rationality for Public Policy*. Oxon, UK; New York, NY: Routledge, 2010.

Lagadec, Erwan. "Unconventional Crises, Unconventional Responses: Reforming Leadership in the Age of Catastrophic Crises and Hypercomplexity." *Center for Transatlantic Relations, Paul H. Nitze School of Advanced International Studies, Johns Hopkins University*, 2007.

Lagadec, Patrick, and Benjamin Topper. "How Crises Model the Modern World." *International Journal of Risk Analysis and Crisis Response* 2, no. 1 (2012): 21–33.

Lagadec, Patrick, Xavier Guilhou, and Pierre Béroux. "Rapid Reflection Forces Put to the Reality Test." *Crisis Response Journal* 4, no. 2 (2008): 38–40.

LaRaia, William, and Michael C. Walker. "The Siege in Mumbai: A Conventional Terrorist Attack Aided by Modern Technology." In *A New Understanding of Terrorism*, edited by M. R. Haberfeld and Agostino von Hassdell, 309–340. New York, NY: Springer, 2009.

Lewis, Theodore G. *Bak's Sand Pile*. Williams, CA: Agile Press, 2011.

Meadows, Donella, and Dianne Wright. *Thinking in Systems*. White River Jct., VT: Chelsea Green Publishing, 2008.

Mica, John L. "A Decade Later: A Call for TSA Reform." Accessed February 7, 2014. http://trid.trb.org/view.aspx?id=1125593.

Mills, Daniel Quinn. *Leadership: How to Lead, How to Live*. Waltham, MA: MindEdge Press, 2005.

Mitchell, Melanie. *Complexity: A Guided Tour*. Oxford, UK: Oxford University Press, 2009.

National Commission on Terrorist Attacks upon the United States, The. *The 9/11 Commission Report: Final Report of the National Commission on Terrorist Attacks upon the United States*. Washington, DC: U.S. Government Printing Office, 2011.

Nieto-Gómez, Rodrigo. "Power of "the Few": A Key Strategic Challenge for the Permanently Disrupted High-Tech Homeland Security Environment." *Home Security Affairs*.

———. "Preventing the Next 9/10 the Homeland Security Challenges of Technological Evolution and Convergence in the Next Ten Years." *Home Security Affairs*.

Obolensky, Nick. *Complex Adaptive Leadership*. London, UK: Gower Publishing Company, Limited, 2010.

Osborn, Richard N., James G. Hunt, and Lawrence R. Jauch. "Toward a Contextual Theory of Leadership." *The Leadership Quarterly* 13, no. 6 (2002): 797–837.

Perrow, Charles. *Normal Accidents: Living with High-Risk Technologies*. New York, NY: Basic Books, 1984.

Prince, Lesley. "Eating the Menu Rather than the Dinner: Tao and Leadership." *Leadership* 1, no. 1 (2005): 105–126.

Pye, Annie. "Leadership and Organizing: Sensemaking in Action." *Leadership* 1, no. 1 (2005): 31–49.

Ramo, Joshua Cooper. *The Age of the Unthinkable: Why the New World Disorder Constantly Surprises Us and What to Do About It*, 1 Back Bay pbk ed. New York, NY: Back Bay Books, 2009.

Ranaud, Cynthia E. "Making Sense in the Edge of Chaos: A Framework for Effective Initial Response Efforts to Large-Scale Incidents." Master's thesis, Naval Postgraduate School, 2010.

Rashid, Faaiza, Amy C. Edmondson, and Herman B. Leonard. "Leadership Lessons from the Chilean Mine Rescue." *Harvard Business Review* 91, no. 7 (2013): 113–119.

Raynor, Michael E. *The Strategy Paradox: Why Committing to Success Leads to Failure (and What to Do About It)*. Random House Digital, Inc., 2007.

Rittel. Horst W. J., and Melvin M. Webber. "Dilemmas in a General Theory of Planning." *Policy Sciences* 4, no. 2 (1973): 155–169.

Robinson, Ben, and Marcus Riley. *Star Trek: USS Enterprise: Haynes Manual*. San Jose, CA: Simon and Schuster, 2010.

Smythe, Elizabeth, and Andrew Norton. "Thinking as Leadership/Leadership As Thinking." *Leadership* 3, no. 1 (2007): 65–90.

Snowden, David. "Good Fences Make Good Neighbors." *Information, Knowledge, Systems Management* 10, no. 1 (2011): 135–150.

Snowden, David J., and Mary E. Boone. "A Leader's Framework for Decision Making." *Harvard Business Review* 85, no. 11 (November 2007): 68–76.

Snyder, Benjamin. "Tony Hayward's Greatest Hits." *CNN.Com*. June 10, 2010. http://money.cnn.com/2010/06/10/news/companies/tony_hayward_quotes.fortune /2010.

Spillane, James P. *Distributed Leadership*, vol. 4. Hoboken, NJ: John Wiley & Sons, 2012.

Stodgill, Ralph Melvin. *Handbook of Leadership: A Survey of Theory and Research*. New York, NY: Free Press; London, UK: Collier Macmillan, 1974.

United States Department of Commerce. *NWS Central Region Service Assessment Joplin, Missouri, Tornado—May 22, 2011*. Washington, DC: Department of Commerce, 2011.

Webb, Tim. "BP Boss Admits Job on the Line Over Gulf Oil Spill." *The Guardian*, sec. 14, 2010.

Weick, Karl E. *Sensemaking in Organizations*. Vol. 3. Thousand Oaks, CA: Sage, 1995.

Wheatley, Margaret J., *Leadership and the New Science: Discovering Order in a Chaotic World*. San Francisco, CA: Berrett-Koehler, 2010.

White House, The. "Hurricane Katrina: Lessons Learned." Accessed November 7, 2013. http://georgewbush-whitehouse.archives.gov/reports/katrina-lessons-learned/chapter5.html.

Wikipedia, s.v. "Wall Street Bombing." Last modified April 29, 2014. http://en.wikipedia.org/wiki/Wall_Street_bombing.

Yonggang Liu, Robert H. Weisberg, Chuanmin Hu, and Lianyuan Zheng. "Tracking the Deepwater Horizon Oil Spill: A Modeling Perspective." *Eos Trans. AGU* 92, no. 6 (2011): 45–52.

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